

UNIT AGREEMENT

BUNKER HILL UNIT AREA
EDDY COUNTY, NEW MEXICO

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UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION
OF THE
BUNKER HILL UNIT AREA
EDDY COUNTY, NEW MEXICO

THIS AGREEMENT, entered into as of the 1st day of November, 1988, by and between the parties subscribing, ratifying, or consenting hereto, and herein referred to as the "parties hereto",

WITNESSETH:

WHEREAS, the parties hereto are the owners of working, royalty, or other oil and gas interests in the Unit Area subject to this Agreement; and

WHEREAS, the Mineral Leasing Act of February 25, 1920, 41 Stat. 437, as amended, 30 U.S.C. Secs. 181 et seq., authorizes Federal lessees and their representatives to unite with each other, or jointly or separately with others, in collectively adopting and operating a cooperative or unit plan of development or operation of any oil or gas pool, field, or like area, or any part thereof for the purpose of more properly conserving the natural resources thereof whenever determined and certified by the Secretary of the Interior to be necessary or advisable in the public interest; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by an Act of the Legislature (Section 1, Chapter 88, Laws 1943, as amended by Section 1 of Chapter 176, Laws of 1961) (Chapter 19, Article 10, Section 45, New Mexico Statutes 1978 Annotated), to consent to and approve the development or operation of State lands under agreements made by lessees of State land jointly or severally with other lessees where such agreements provide for the unit operation or development of part of or all of any oil or gas pool, field or area; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by an Act of the Legislature (Section 1, Chapter 88, Laws 1943, as amended by Section 1, Chapter 162, Laws of 1951) (Chapter 19, Article 10, Section 47, New Mexico Statutes 1978 Annotated) to amend with the approval of lessee, evidenced by the lessee's execution of such agreement or otherwise, any oil and gas lease embracing State lands so that the length of the term of said lease may coincide with the term of such agreements for the unit operation and development of part or all of any oil or gas pool, field or area; and

WHEREAS, the Oil Conservation Division of the State of New Mexico (hereinafter referred to as the "Division") is authorized by an Act of the Legislature (Chapter 72, Laws of 1935 as amended) (Chapter 70, Article 2, Section 2 et seq., New Mexico Statutes 1978 Annotated) to approve this Agreement and the conservation provisions hereof; and

WHEREAS, the Oil Conservation Division of the Energy and Minerals Department of the State of New Mexico is authorized by law (Chapter 65, Article 3 and Article 14, N.M.S. 1953 Annotated) to approve this Agreement and the conservation provisions hereof; and

WHEREAS, the parties hereto hold sufficient interest in the Unit Area covering the land hereinafter described to give reasonably effective control of operations therein; and

WHEREAS, it is the purpose of the parties hereto to conserve natural resources, prevent waste, and secure other benefits obtainable through development and operation of the area subject to this Agreement under the terms, conditions, and limitations herein set forth;

NOW, THEREFORE, in consideration of the premises and the promises herein contained, the parties hereto commit to this Agreement their respective interest in the below-defined Unit Area, and agree severally among themselves as follows:

SECTION 1. ENABLING ACT AND REGULATIONS. The Mineral Leasing Act of February 25, 1920, as amended, supra, and all valid pertinent regulations, including operating and unit plan regulations, heretofore issued thereunder or valid, pertinent, and reasonable regulations hereafter issued thereunder are accepted and made a part of this Agreement as to Federal lands, provided such regulations are not inconsistent with the terms of this Agreement; and as to non-Federal lands, the oil and gas operating regulations in effect as of the Effective Date hereof governing drilling and producing operations, not inconsistent with the terms hereof or the laws of the State in which the non-Federal land is located, are hereby accepted and made a part of this Agreement.

SECTION 2. UNIT AREA AND DEFINITIONS. For the purpose of this Agreement, the following terms and expressions as used herein shall mean:

(a) "Unit Area" is defined as those lands described in Exhibit "B" and depicted on Exhibit "A" hereof, and such land is hereby designated and recognized as constituting the Unit Area, containing 1,360.00 acres, more or less, in Eddy County, New Mexico.

(b) "Land Commissioner" is defined as the Commissioner of Public Lands of the State of New Mexico.

(c) "Division" is defined as the Oil Conservation Division of the Department of Energy and Minerals of the State of New Mexico.

(d) "Authorized Officer" or "A.O." is any employee of the Bureau of Land Management who has been delegated the required authority to act on behalf of the BLM.

(e) "Secretary" is defined as the Secretary of the Interior of the United States of America, or his duly authorized delegate.

(f) "Department" is defined as the Department of the Interior of the United States of America.

(g) "Proper BLM Office" is defined as the Bureau of Land Management office having jurisdiction over the federal lands included in the Unit Area.

(h) "Unitized Formation" shall mean that interval underlying the Unit Area, the vertical limits of which extend from an upper limit described as + 950 feet.

(h) "Unitized formation" shall mean that interval containing the Penrose sand underlying the Unit area, the vertical limits of which extend from an upper limit described as +950 feet above mean sea level to a lower limit of +700 feet above mean sea level. The Penrose sand was recorded on the Dresser Atlas Compensated Densilog-Compensated Neutron Log taken on the Dartmouth #1 well (located at 600 feet FSL and 660 feet FEL of Section 14, T-16-S, R-31-E, Lea County, New Mexico) on April 29, 1981, as being the interval from +804 feet above sea level to +776 feet above sea level, said log being measured from a corrected Kelley drive bushing elevation of 4,402.0 feet above sea level.

(i) "Unitized Substances" are all oil, gas, gaseous substances, sulphur contained in gas, condensate, distillate and all associated and constituent liquid or liquefiable hydrocarbons, other than outside substances, within and produced from the Unitized Formation.

(j) "Tract" is each parcel of land described as such and given a Tract number in Exhibit "B".

(k) "Tract Participation" is the sum of the percentages obtained by multiplying the Working Interest of a Working Interest Owner in each Tract by the Tract Participation of such Tract.

(l) "Unit Participation" is the sum of the percentages obtained by multiplying the Working Interest of a Working Interest Owner in each Tract by the Tract Participation of such Tract.

(m) "Working Interest" is the right to search for, produce and acquire Unitized Substances whether held as an incident of ownership of mineral fee simple title, under an Oil and gas lease, operating agreement, or otherwise held, which interest is chargeable with and obligated to pay or bear, either in cash or out of production, or otherwise, all or a portion of the cost of drilling, developing and producing the Unitized Substances from the Unitized Formation and operations thereof hereunder. Provided that any royalty interest created out of a working interest subsequent to the execution of this Agreement by the owner of the working interest shall continue to be subject to such working interest burdens and obligations.

(n) "Working Interest Owner" is any party hereto owning a Working Interest, including a carried working interest owner, holding an interest in Unitized Substances by virtue of a lease, operating agreement, fee title or otherwise. The owner of oil and gas rights that are free of lease or other instrument creating a Working Interest in another shall be regarded as a Working Interest Owner to the extent of seven-eighths (7/8) of his interest in Unitized Substances, and as a Royalty Owner with respect to his remaining one-eighth (1/8) interest therein.

(o) "Royalty Interest" or "Royalty" is an interest other than a Working Interest in or right to receive a portion of the Unitized Substances or the proceeds thereof and includes the royalty interest reserved by the lessor or by an oil and gas lease and any overriding royalty interest, oil payment interest, net profit contacts, or any other payment or burden which does not carry with it

the right to search for and produce unitized substances.

(p) "Royalty Owner" is the owner of a Royalty Interest.

(q) "Unit Operating Agreement" is the agreement entered into by and between the Unit Operator and the Working Interest Owners as provided in Section 9, infra, and shall be styled "Unit Operating Agreement, Bunker Hill Unit Area, Eddy County, New Mexico".

(r) "Oil and Gas Rights" is the right to explore, develop and operate lands within the Unit Area for the production of Unitized Substances, or to share in the production so obtained or the proceeds thereof.

(s) "Outside Substances" is any substance obtained from any source other than the Unitized Formation and injected into the Unitized Formation.

(t) "Unit Manager" is any person or corporation appointed by Working Interest Owners to perform the duties of Unit Operator until the selection and qualifications of a successor Unit Operator as provided for in Section 7 hereof.

(u) "Unit Operator" is the party designated by Working Interest Owners under the Unit Operating Agreement to conduct Unit Operations.

(v) "Unit Operations" is any operation conducted pursuant to this Agreement and the Unit Operating Agreement.

(w) "Unit Equipment" is all personal property, lease and well equipment, plants, and other facilities and equipment taken over or otherwise acquired for the joint account for use in Unit Operations.

(x) "Unit Expense" is all cost, expense, or indebtedness incurred by Working Interest Owners or Unit Operator pursuant to this Agreement and the Unit Operating Agreement for or on account of Unit Operations.

(y) "Effective Date" is the date determined in accordance with Section 24, or as redetermined in accordance with Section 39.

SECTION 3. EXHIBITS. The following exhibits are incorporated herein by reference: Exhibit "A" attached hereto is a map showing the Unit Area and the boundaries and identity of tracts and leases in said Unit Area to the extent known to the Unit Operator. Exhibit "B" attached hereto is a schedule showing, to the extent known to the Unit Operator, the acreage comprising each Tract, percentages and kind of ownership of oil and gas interests in all land in the Unit Area, and Tract Participation of each Tract. However, nothing herein or in said schedule or map shall be construed as a representation by any party hereto as to the ownership of any interest other than such interest or interests as are shown in said map or schedule as owned by such party. The shapes and descriptions of the respective Tracts have been established by using the best information available. Each Working Interest Owner is responsible for supplying Unit Operator with accurate information relating to each Working Interest Owner's interest. If it subsequently appears that any Tract, because of diverse royalty or working interest ownership on the Effective Date hereof, should be divided into more than one Tract, or when any revision is requested by the A.O., or any correction of any error other than

mechanical miscalculations or clerical is needed, then the Unit Operator, with the approval of the Working Interest owners, may correct the mistake by revising the exhibits to conform to the facts. The revision shall not include any reevaluation of engineering or geological interpretations used in determining Tract Participation. Each such revision of an exhibit made prior to thirty (30) days after the Effective Date shall be effective as of the Effective Date. Each other such revision of an exhibit shall be effective at 7:00 A.M., on the first day of the calendar month next following the filing for record of the revised exhibit or on such other date as may be determined by Working Interest Owners and set forth in the revised exhibit. Copies of such revision shall be filed with the Land Commissioner, and not less than four copies shall be filed with the A.O. In any such revision, there shall be no retroactive allocation or adjustment of Unit Expense or of interests in the Unitized Substances produced, or proceeds thereof.

SECTION 4. EXPANSION. The above described Unit Area may, with the approval of the A.O. and Land Commissioner, when practicable be expanded to include therein any additional Tract or Tracts regarded as reasonably necessary or advisable for the purposes of this Agreement provided however, in such expansion there shall be no retroactive allocation or adjustment of Unit Expense or of interests in the Unitized Substances produced, or proceeds thereof. Pursuant to Subsection (b), the Working Interest Owners may agree upon an adjustment of investment by reason of the expansion. Such expansion shall be effected in the following manner:

(a) The Working Interest Owner or Owners of a Tract or Tracts desiring to bring such Tract or Tracts into this unit, shall file an application therefor with Unit Operator requesting such admission.

(b) Unit Operator shall circulate a notice of the proposed expansion to each Working Interest Owner in the Unit Area and in the Tract proposed to be included in the unit, setting out the basis for admission, the Tract Participation to be assigned to each Tract in the enlarged Unit Area and other pertinent data. After negotiation (at Working Interest Owner's meeting or otherwise) if at least three Working Interest Owners having in the aggregate seventy-five percent (75%) of the Unit Participation then in effect have agreed to inclusion of such Tract or Tracts in the Unit Area, then Unit Operator shall:

(1) After obtaining preliminary concurrence by the A.O. and Land Commissioner, prepare a notice of proposed expansion describing the contemplated changes in the boundaries of the Unit Area, the reason therefor, the basis for admission of the additional Tract or Tracts, the Tract Participation to be assigned thereto and the proposed effective date thereof; and

(2) Deliver copies of said notice to Land Commissioner, the A.O. at the Proper BLM Office, each Working Interest Owner and to the last known address of each lessee and lessor whose interest are affected, advising such parties that thirty (30) days will be allowed for submission to the Unit Operator of any objection to such proposed expansion; and

(3) File, upon the expiration of said thirty (30) day period as set out in (2) immediately above with the Land Commissioner and A.O. the following: (a) evidence of mailing or delivering copies of said notice of expansion; (b) an application for approval of such expansion; (c) an instrument containing the appropriate joinders in compliance with the participation requirements of Section 14,

and Section 34, infra; and (d) a copy of all objections received along with the Unit Operator's response thereto.

The expansion shall, after due consideration of all pertinent information and approval by the Land Commissioner and the A.O., become effective as of the date prescribed in the notice thereof, preferably the first day of the month subsequent to the date of notice. The revised Tract Participation of the respective Tracts included within the Unit Area prior to such enlargement shall remain the same ratio one to another.

SECTION 5. UNITIZED LAND. All land committed to this Agreement as to the Unitized Formation shall constitute land referred to herein as "Unitized Land" or "Land subject to this Agreement". Nothing herein shall be construed to unitize, pool, or in any way affect the oil, gas and other minerals contained in or that may be produced from any formation other than the Unitized Formation as defined in Section 2(h) of this Agreement.

SECTION 6. UNIT OPERATOR. Read & Stevens, Inc. is hereby designated the Unit Operator, and by signing this instrument as Unit Operator, agrees and consents to accept the duties and obligations of Unit Operator for the operation, development, and production of Unitized Substances as herein provided. Whenever reference is made herein to the Unit Operator, such reference means the Unit Operator acting in that capacity and not as an owner of interests in Unitized Substances, when such interests are owned by it and the term "Working Interest Owner" when used herein shall include or refer to the Unit Operator as the owner of a Working Interest when such an interest is owned by it.

Unit Operator shall have a lien upon interests of Working Interest Owners in the Unit Area to the extent provided in the Unit Operating Agreement.

SECTION 7, RESIGNATION OR REMOVAL OF UNIT OPERATOR. Unit Operator shall have the right to resign at any time, but such resignation shall not become effective so as to release Unit Operator from the duties and obligations of Unit Operator and terminate Unit Operator's rights as such for a period of six (6) months after written notice of intention to resign has been given by Unit Operator to all Working Interest Owners, the Land Commissioner and the A.O. unless a new Unit Operator shall have taken over and assumed the duties and obligations of Unit Operator prior to the expiration of said period.

The Unit Operator shall, upon default or failure in the performance of its duties and obligations hereunder, be subject to removal by Working Interest Owners having in the aggregate eighty percent (80%) or more of the Unit Participation then in effect exclusive of the Working Interest Owner who is the Unit Operator. Such removal shall be effective upon notice thereof to the Land Commissioner and the A.O.

In all such instances of effective resignation or removal, until a successor to Unit Operator is selected and approved as hereinafter provided, the Working Interest Owners shall be jointly responsible for the performance of the duties of the Unit Operator and shall, not later than thirty (30) days before such resignation or removal becomes effective, appoint a Unit Manager to represent them in any action to be taken hereunder.

The resignation or removal of Unit Operator under this Agreement shall not terminate its right, title or interest as the owner of a Working Interest or other interest in Unitized Substances, but upon the resignation or removal of Unit Operator becoming effective, such Unit Operator shall deliver possession of all wells, equipment, books and records, materials, appurtenances and any other assets used in connection with the Unit Operations to the new duly qualified successor Unit Operator or to the Unit Manager if no such new Unit Operator is elected. Nothing herein shall be construed as authorizing the removal of any material, equipment or appurtenances needed for the preservation of any wells. Nothing herein contained shall be construed to relieve or discharge any Unit Operator or Unit Manager who resigns or is removed hereunder from any liability or duties accruing or performable by it prior to the effective date of such resignation or removal.

SECTION 8. SUCCESSOR UNIT OPERATOR. Whenever the Unit Operator shall tender its resignation as Unit Operator or shall be removed as hereinabove provided, the Working Interest Owners shall select a successor Unit Operator as herein provided. Such selection shall not become effective until (a) a Unit Operator so selected shall accept in writing the duties and responsibilities of Unit Operator, and (b) the selection shall have been approved by the Land Commissioner and the A.O. If no successor Unit Operator or Unit Manager is selected and qualified as herein provided, the Land Commissioner and/or the A.O., at their election, may declare this Agreement terminated.

In selecting a successor Unit Operator, the affirmative vote of three or more Working Interest Owners having a total of sixty-five percent (65%) or more of the total Unit Participation shall prevail; provided that if any one Working Interest Owner has a Unit Participation of more than thirty-five percent (35%), its negative vote or failure to vote shall not be regarded as sufficient unless supported by the vote of one or more other Working Interest Owners having a total Unit Participation of at least five percent (5%). If the Unit Operator who is removed votes only to succeed itself or fails to vote, the successor Unit Operator may be selected by the affirmative vote of the owners of at least seventy-five percent (75%) of the Unit Participation remaining after excluding the Unit Participation of Unit Operator so removed.

SECTION 9. ACCOUNTING PROVISIONS AND UNIT OPERATING AGREEMENT. Costs and expenses incurred by Unit Operator in conducting Unit Operations hereunder shall be paid, apportioned among and borne by the Working Interest Owners in accordance with the Unit Operating Agreement. Such Unit Operating Agreement shall also provide the manner in which the Working Interest Owners shall be entitled to receive their respective proportionate and allocated share of the benefits accruing hereto in conformity with their underlying operating agreements, leases or other contracts and such other rights and obligations as between Unit Operator and the Working Interest Owners as may be agreed upon by the Unit Operator and the Working Interest Owners; however, no such Unit Operating Agreement shall be deemed either to modify any of the terms and conditions of this Agreement or to relieve the Unit Operator of any right or obligation established under this Agreement, and in case of any inconsistency or conflict between this Agreement and the Unit Operating Agreement, this Agreement shall prevail. Copies of any Unit Operating Agreement executed pursuant to this Section shall be filed with the Land Commissioner and with the A.O. at the Proper BLM Office as required prior to approval of this Agreement.

SECTION 10. RIGHTS AND OBLIGATIONS OF UNIT OPERATOR. Except as otherwise

specifically provided herein, the exclusive right, privilege and duty of exercising any and all rights of the parties hereto including surface rights which are necessary or convenient for prospecting for, producing, storing, allocating and distributing the Unitized Substances are hereby delegated to and shall be exercised by the Unit Operator as herein provided. Upon request, acceptable evidence of title to said rights shall be deposited with said Unit Operator, and together with this Agreement, shall constitute and define the rights, privileges and obligations of Unit Operator. Nothing herein, however, shall be construed to transfer title to any land or to any lease or operating agreement, it being understood that under this Agreement the Unit Operator, in its capacity as Unit Operator, shall exercise the rights of possession and use vested in the parties hereto only for the purposes herein specified.

SECTION 11. PLAN OF OPERATIONS. It is recognized and agreed by the parties hereto that all of the land subject to this Agreement is reasonably proved to be productive of Unitized Substances and that the object and purpose of this Agreement is to formulate and to put into effect an improved recovery project in order to effect additional recovery of Unitized Substances, prevent waste and conserve natural resources. Unit Operator shall have the right to inject into the Unitized Formation any substances for secondary recovery or enhanced recovery purposes in accordance with a plan of operation approved by the Working Interest Owners, the A.O., the Land Commissioner and the Division, including the right to drill and maintain injection wells on the Unitized Land and completed in the Unitized Formation, and to use abandoned well or wells producing from the Unitized Formation for said purpose. Subject to like approval, the Plan of Operation may be revised as conditions may warrant.

The initial Plan of Operation shall be filed with the A.O., the Land Commissioner and the Division concurrently with the filing of this Unit Agreement for final approval. Said initial plan of operations and all revisions thereof shall be as complete and adequate as the A.O., the Land Commissioner and the Division may determine to be necessary for timely operation consistent herewith. Upon approval of this Agreement and the initial plan by the A.O. and Commissioner, said plan, and all subsequently approved plans, shall constitute the operating obligations of the Unit Operator under this Agreement for the period specified therein. Thereafter, from time to time before the expiration of any existing plan, the Unit Operator shall submit for like approval a plan for an additional specified period of operations. After such operations are commenced, reasonable diligence shall be exercised by the Unit Operator in complying with the obligations of the approved Plan of Operation.

Notwithstanding anything to the contrary herein contained, should the Unit Operator fail to commence Unit Operations for the secondary recovery of Unitized Substances from the Unit Area within eighteen (18) months after the effective date of this Agreement, or any extension thereof approved by the A.O., this Agreement shall terminate automatically as of the date of default.

SECTION 12. USE OF SURFACE AND USE OF WATER. The parties to the extent of their rights and interests, hereby grant to Unit Operator the right to use as much of the surface, including the water thereunder, of the Unitized Land as may reasonably be necessary for Unit Operations.

Unit Operator's free use of water or brine or both for Unit Operations, shall

not include any water from any well, lake, pond or irrigation ditch of a surface owner, unless approval for such use is granted by the surface owner.

Unit Operator shall pay the surface owner for damages to growing crops, fences, improvements and structures on the Unitized Land that result from Unit Operations, and such payments shall be considered as items of unit expense to be borne by all the Working Interest Owners of lands subject hereto.

SECTION 13. TRACT PARTICIPATION. In Exhibit "B" attached hereto there are listed and numbered the various Tracts within the Unit Area, and set forth opposite each Tract are figures which represent the Tract Participation, during Unit Operations if all Tracts in the Unit Area qualify as provided herein. The Tract Participation of each Tract as shown in Exhibit "B" was determined in accordance with the following formula:

$$\text{Tract Participation} = 3\% \text{ A/B} + 47\% \text{ C/D} + 25\% \text{ E/F} + 25\% \text{ G/H}$$

A= Surface acres in Tract.

B= Total surface acres in Unit Area.

C= Tract floodable volume. Determined by planimetering (Isopach Map) floodable reservoir volume beneath each unit tract.

D= Total unit floodable volume. Determined by planimetering (Isopach Map) floodable reservoir volume beneath the unit area.

E= Tract cumulative production to August 1, 1988.

F= Total Unit cumulative production to August 1, 1988.

G= Tract current BOPD equivalent. Current oil production plus current gas production converted to oil equivalent as to each tract.

H= Total unit current BOPD equivalent. Current oil production plus current gas production converted to oil equivalent upon the unit area.

In the event less than all Tracts are qualified on the Effective Date hereof, the Tract Participation shall be calculated on the basis of all such qualified Tracts rather than all Tracts in the Unit Area.

SECTION 14. TRACTS QUALIFIED FOR PARTICIPATION. On and after the Effective Date hereof, the Tracts within the Unit Area which shall be entitled to participation in the production of Unitized Substances shall be those Tracts more particularly described in Exhibit "B" that corner or have a common boundary (Tracts separated only by a public road or a railroad right-of-way shall be considered to have a common boundary), and that otherwise qualify as follows:

(a) Each Tract as to which Working Interest Owners owning one hundred percent (100%) of the Working Interest have become parties to this Agreement and as to which Royalty Owners owning seventy-five percent (75%) or more of the Royalty Interest have become parties to this Agreement.

(b) Each Tract as to which Working Interest Owners owning one hundred percent (100%) of the Working Interest have become parties to this Agreement, and as to which Royalty Owners owning less than seventy-five percent (75%) of the Royalty Interest have become parties to this Agreement, and as to which (1) the Working Interest Owner who operates the Tract and Working Interest Owners owning at least seventy-five percent (75%) of the remaining Working Interest in such Tract have joined in a request for the inclusion of such Tract, and as to which (2) Working Interest Owners owning at least seventy-five percent (75%) of the combined Unit Participation in all Tracts that meet the requirements of Section 14(a) above have voted in favor of the inclusion of such tract.

(c) Each Tract as to which Working Interest Owners owning less than one-hundred percent (100%) of the Working Interest have become parties to this Agreement, regardless of the percentage of Royalty Interest therein that is committed hereto; and as to which (1) the Working Interest Owner who operates the Tract and Working Interest Owner owning at least seventy-five percent (75%) of the remaining Working Interest in such Tract who have become parties to this Agreement have joined in a request for inclusion of such Tract, and have executed and delivered, or obligated themselves to execute and deliver an indemnity agreement indemnifying and agreeing to hold harmless the other owners of committed Working Interests, their successors and assigns, against all claims and demands that may be made by the owners of Working Interest in such Tract who are not parties to this Agreement, and which arise out of the inclusion of the Tract; and as to which (2) Working Interest Owners owning at least seventy-five percent (75%) of the Unit Participation in all Tracts that meet the requirements of Section 14(a) and 14(b) have voted in favor of the inclusion of such Tract and to accept the indemnity agreement. Upon the inclusion of such a Tract, the Tract Participations which would have been attributed to the nonsubscribing owners of Working Interest in such Tract, had they become parties to this Agreement and the Unit Operating Agreement, shall be attributed to the Working Interest Owners in such Tract who have become parties to such agreements, and joined in the indemnity agreement, in proportion to their respective Working Interests in the Tract.

If on the Effective Date of this Agreement there is any Tract or Tracts which have not been effectively committed to or made subject to this Agreement by qualifying as above provided, then such Tract or Tracts shall not be entitled to participate hereunder. Unit Operator shall, when submitting this Agreement for final

approval by the Land Commissioner and the A.O., file therewith a schedule of those tracts which have been committed and made subject to this Agreement and are entitled to participate in Unitized Substances. Said schedule shall set forth opposite each such committed Tract the lease number or assignment number, the owner of record of the lease, and the percentage participation of such tract which shall be computed according to the participation formula set forth in Section 13 (Tract Participation) above. This schedule of participation shall be revised Exhibit "B" and upon approval thereof by the Land Commissioner and the A.O. shall become a part of this Agreement and shall govern the allocation of production of Unitized Substances until a new schedule is approved by the Land Commissioner and A.O.

SECTION 15.A. ALLOCATION OF UNITIZED SUBSTANCES. All Unitized Substances produced and saved (less, save and except any part of such Unitized Substances used in conformity with good operating practices on unitized land for drilling, operating, camp and other production or development purposes and for injection or unavoidable loss in accordance with a Plan of Operation approved by the A.O. and Land Commissioner) shall be apportioned among and allocated to the qualified Tracts in accordance with the respective Tract Participations effective hereunder during the respective periods such Unitized Substances were produced, as set forth in the schedule of participation in Exhibit "B". The amount of Unitized Substances so allocated to each Tract, and only that amount (regardless of whether it be more or less than the amount of the actual production of Unitized Substances from the well or wells, if any, on such Tract) shall, for all intents, uses and purposes, be deemed to have been produced from such Tract.

The Unitized Substances allocated to each Tract shall be distributed among, or accounted for, to the parties entitled to share in the production from such Tract in the same manner, in the same proportions, and upon the same conditions, as they would have participated and shared in the production from such Tracts, or in the proceeds thereof, had this Agreement not been entered into; and with the same legal force and effect.

No Tract committed to this Agreement and qualified for participation as above provided shall be subsequently excluded from participation hereunder on account of depletion of Unitized Substances.

If the Working Interest and/or the Royalty Interest in any Tract are divided with respect to separate parcels or portions of such Tract and owned now or hereafter in severalty by different persons, the Tract Participation shall in the absence of a recordable instrument executed by all owners in such Tract and furnished to Unit Operator fixing the divisions of ownership, be divided among such parcels or portions in proportion to the number of surface acres in each.

SECTION 15.B. WINDFALL PROFIT TAX. In order to comply with the Windfall Profit Tax Act of 1980, as amended, and applicable regulations and to ensure that interest owners of each Tract retain the Windfall Profit Tax benefits accruing to each Tract prior to joining the Unit, for Windfall Profit Tax purposes only, crude oil shall be allocated to individual Tracts as follows:

SECTION 15.C. IMPUTED NEWLY DISCOVERED CRUDE OIL. Each Tract contributing newly discovered crude oil to the Unit Area, that is, each Tract certified as a newly discovered property for Windfall Profit Tax purposes prior to joining the

Unit (Newly Discovered Tract), shall be allocated imputed newly discovered crude oil in the proportion that the Tract Participation of such Tract bears to the total of the Tract Participations of all Newly Discovered Tracts; provided, however, that imputed newly discovered crude oil allocated to any Tract under this Subsection 15.C. shall not exceed in any month, the total number of barrels of crude oil allocable out of unit production to such Tract in accordance with its Tract Participation. In the event a Newly Discovered Tract is so allocated a number of barrels of imputed newly discovered crude oil which is less than the total number of barrels of crude oil allocable out of unit production to such Tract in accordance with its Tract Participation, then such Newly Discovered Tract shall be allocated any remaining unallocated newly discovered crude oil in the proportion that the Tract Participation of such Tract bears to the total of Tract Participations of all Newly Discovered Tracts not previously so allocated the total number of barrels allocable out of unit production in accordance with their Tract Participations. This additional allocation process shall continue to be repeated, as outlined in the preceding sentence, until such time as:

(a) all Newly Discovered Tracts have been so allocated a number of barrels of imputed newly discovered crude oil equal to the total number of barrels of crude oil allocable out of unit production to such Tracts in accordance with their Tract Participations; or

(b) there is no imputed newly discovered crude oil remaining to be allocated, whichever occurs first.

Any imputed newly discovered crude oil in excess of the amount of oil allocable to a Tract in accordance with this Subsection 15.C. shall be termed excess imputed newly discovered crude oil.

SECTION 15.D. IMPUTED STRIPPER CRUDE OIL. Each Tract contributing stripper crude oil to the Unit Area, that is, each Tract certified as a stripper property for Windfall Profit Tax purposes prior to joining the Unit (Stripper Tract), shall be allocated imputed stripper crude oil in the proportion that the Tract Participation of such Tract bears to the total of the Tract Participations of all Stripper Tracts; provided, however, that imputed stripper crude oil allocated to any Tract under this Subsection 15.D. shall not exceed, in any month, the total number of barrels of crude oil allocable out of unit production to such Tract in accordance with its Tract Participation. In the event a Stripper Tract is so allocated a number of barrels of imputed stripper crude oil which is less than the total number of barrels of crude oil allocable out of unit production to such Tract in accordance with its Tract Participation, then such Stripper Tract shall be allocated any remaining unallocated imputed stripper crude oil in the proportion that the Tract Participation of such Tract bears to the total of the Tract Participations of all Stripper Tracts not previously so allocated the total number of barrels allocable out of unit production in accordance with their Tract Participations. This additional allocation process shall continue to be repeated, as outlined in the preceding sentence, until such time as:

(a) all Stripper Tracts have been so allocated a number of barrels of imputed stripper crude oil equal to the total number of barrels of crude oil allocable out of unit production to such Tracts in accordance with their Tract Participations; or

(b) there is no imputed stripper crude oil remaining to be allocated,

whichever comes first.

Any imputed stripper crude oil in excess of the amount of oil allocable to a Tract in accordance with this Subsection 15.D. shall be termed excess imputed stripper crude oil.

SECTION 15.E. EXCESS IMPUTED NEWLY DISCOVERED CRUDE OIL. Each Tract shall be allocated any excess imputed newly discovered crude oil in the proportion that its Tract Participation bears to the total of the Tract Participations of all Tracts not previously allocated the total number of barrels of crude oil allocable to these Tracts out of unit production in accordance with the Tract Participations of such Tracts; provided, however, that excess imputed newly discovered crude oil allocated to each such Tract, when added to the total number of barrels of imputed newly discovered crude oil previously allocated to it, shall not exceed, in any month, the total number of barrels of oil allocable to it out of unit production in accordance with its Tract Participation.

SECTION 15.F. EXCESS IMPUTED STRIPPER CRUDE OIL. Each Tract shall be allocated any excess imputed stripper crude oil in the proportion that its Tract Participation bears to the total of the Tract Participations of all Tracts not previously allocated the total number of crude oil barrels allocable to these Tracts out of unit production in accordance with the Tract Participations of such Tracts; provided, however, that excess imputed stripper crude oil allocated to each such Tract, when added to the total number of barrels of imputed stripper crude oil previously allocated to it, shall not exceed, in any month, the total number of barrels of oil allocable to it out of unit production in accordance with its Tract Participation.

SECTION 15.G. TAKING UNITIZED SUBSTANCES IN KIND. The Unitized Substances allocated to each Tract shall be delivered in kind to the respective parties entitled thereto by virtue of the ownership of oil and gas rights therein. Each such party shall have the right to construct, maintain and operate all necessary facilities for that purpose within the Unitized Area, provided the same are so constructed, maintained and operated as not to interfere with Unit Operations. Subject to Section 17 hereof, any extra expenditure incurred by Unit Operator by reason of the delivery in kind of any portion of the Unitized Substances shall be borne by the party taking delivery. In the event any Working Interest Owner shall fail to take or otherwise adequately dispose of its proportionate share of the production from the Unitized Formation, then so long as such condition continues, Unit Operator, for the account and at the expense of the Working Interest Owner of the Tract or Tracts concerned, and in order to avoid curtailing the operation of the Unit Area, may, but shall not be required to, sell or otherwise dispose of such production to itself or to others, provided that all contracts of sale by Unit Operator of any other party's share of Unitized Substances shall be only for such reasonable periods of time as are consistent with the minimum needs of the industry under the circumstances, but in no event shall any such contract be for a period in excess of one year, and at not less than the prevailing market price in the area for like production, and the account of such Working Interest Owner shall be charged therewith as having received such production. The net proceeds, if any, of the Unitized Substances so disposed of by Unit Operator shall be paid to the Working Interest Owner of the Tract or Tracts concerned. Notwithstanding the foregoing, Unit Operator shall not make a sale into interstate commerce of any Working Interest Owner's share of gas production without first giving such Working Interest Owner sixty (60) days' notice of such intended sale.

Any Working Interest Owner receiving in kind or separately disposing of all or any part of the Unitized Substances allocated to any Tract, or receiving the proceeds therefrom if the same is sold or purchased by Unit Operator, shall be responsible for the payment of all royalty, overriding royalty and production payments due thereon, and each such party shall hold each other Working Interest Owner harmless against all claims, demands and causes of action by owners of such royalty, overriding royalty and production payments.

If, after the Effective Date of this Agreement, there is any Tract or Tracts that are subsequently committed hereto, as provided in Section 4 (Expansion) hereof, or any Tract or Tracts within the Unit Area not committed hereto as of the Effective Date hereof but which are subsequently committed hereto under the provisions of Section 14 (Tracts Qualified For Participation) and Section 32 (Nonjoinder And Subsequent Joinder); or if any Tract is excluded from this Agreement as provided for in Section 21 (Loss of Title), the schedule of participation as shown in Exhibit "B" shall be revised by the Unit Operator; and the revised Exhibit "B", upon approval by the Land Commissioner and the A.O., shall govern the allocation of production on and after the effective date thereof until a revised schedule is approved as hereinabove provided.

SECTION 16. OUTSIDE SUBSTANCES. If gas obtained from formations not subject to this Agreement is introduced into the Unitized Formation for use in repressuring, stimulating of production or increasing ultimate recovery which shall be in conformity with a Plan of Operation first approved by the Land Commissioner and the A.O., a like amount of gas with appropriate deduction for loss or depletion from any cause may be withdrawn from unit wells completed in the Unitized Formation royalty free as to dry gas, but not royalty free as to the products extracted therefrom; provided that such withdrawal shall be at such time as may be provided in the approved Plan of Operation or as otherwise may be consented to or prescribed by the Land Commissioner and the A.O. as conforming to good petroleum engineering practices and provided further that such right of withdrawal shall terminate on the termination date of this Agreement.

SECTION 17. ROYALTY SETTLEMENT. The State of New Mexico and United States of America and all Royalty Owners who, under an existing contract, are entitled to take in kind a share of the substances produced from any Tract unitized hereunder, shall continue to be entitled to such right to take in kind their share of the Unitized Substances allocated to such Tract, and Unit Operator shall make deliveries of such Royalty share taken in kind in conformity with the applicable contracts, laws and regulations. Settlement for Royalty not taken in kind shall be made by Working Interest Owners responsible therefor under existing contracts, laws and regulations on or before the last day of each month for Unitized Substances produced during the preceding calendar month; provided, however, that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any Royalty due under the leases, except that such Royalty shall be computed on Unitized Substances as allocated to each Tract in accordance with the terms of this Agreement. With respect to Federal leases committed hereto on which the royalty rate depends upon the daily average production per well, such average production shall be determined in accordance with the operating regulations pertaining to Federal leases as though the committed Tracts were included in a single consolidated lease.

If the amount of production or the proceeds thereof accruing to any Royalty Owner (except the United States of America) in a Tract depends upon the average

production per well or the average pipeline runs per well from such Tract during any period of time, then such production shall be determined from and after the effective date hereof by dividing the quantity of Unitized Substances allocated hereunder to such Tract during such period of time by the number of wells located thereon capable of producing Unitized Substances as of the Effective Date hereof, provided that any Tract not having any well so capable of producing Unitized Substances on the Effective Date hereof shall be considered as having one such well for the purpose of this provision.

All Royalty due the State of New Mexico and the United States of America and the other Royalty Owners hereunder shall be computed and paid on the basis of all Unitized Substances allocated to the respective Tract or Tracts committed hereto, in lieu of actual production from such Tract or Tracts.

With the exception of Federal and State requirements to the contrary, Working Interest Owners may use or consume Unitized Substances for Unit Operations and no Royalty, overriding royalty, production or other payments shall be payable on account of Unitized Substances used, lost or consumed in Unit Operations.

Each Royalty Owner (other than the State of New Mexico and the United States of America) that executes this Agreement represents and warrants that it is the owner of a Royalty Interest in a Tract or Tracts within the Unit Area as its interest appears in Exhibit "B" attached hereto. If any Royalty Interest in a Tract or Tracts should be lost by title failure or otherwise in whole or in part, during the term of this Agreement, then the Royalty Interest of the party representing himself to be the owner thereof shall be reduced proportionately and the interests of all parties shall be adjusted accordingly.

SECTION 18. RENTAL SETTLEMENT. Rentals or minimum Royalties due on the leases committed hereto shall be paid by Working Interest Owners responsible therefor under existing contracts, laws and regulations provided that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any rental or minimum Royalty in lieu thereof, due under their leases. Rental for lands of the State of New Mexico subject to this Agreement shall be paid at the rate specified in the respective leases from the State of New Mexico. Rental or minimum Royalty for lands of the United States of America subject to this Agreement shall be paid at the rate specified in the respective leases from the United States of America, unless such rental or minimum Royalty is waived, suspended or reduced by law or by approval of the Secretary or his duly authorized representative.

SECTION 19. CONSERVATION. Operations hereunder and production of Unitized Substances shall be conducted to provide for the most economical and efficient recovery of said substances without waste, as defined by or pursuant to Federal and State laws and regulations.

SECTION 20. DRAINAGE. The Unit Operator shall take all reasonable and prudent measures to prevent drainage of Unitized Substances from unitized land by wells on land not subject to this Agreement.

The Unit Operator, upon approval by the Working Interest Owners, the A.O. and the Land Commissioner, is hereby empowered to enter into a borderline agreement or agreements with working interest owners of adjoining lands not subject to this

Agreement with respect to operation in the border area for the maximum economic recovery, conservation purposes and proper protection of the parties and interest affected.

SECTION 21. LOSS OF TITLE. In the event title to any Tract of unitized land shall fail and the true owner cannot be induced to join in this Agreement, such Tract shall be automatically regarded as not committed hereto, and there shall be such readjustment of future costs and benefits as may be required on account of the loss of such title. In the event of a dispute as to title to any Royalty, Working Interest, or other interests subject thereto, payment or delivery on account thereof may be withheld without liability for interest until the dispute is finally settled; provided, that, as to State or Federal lands or leases, no payments of funds due the United States or the State of New Mexico shall be withheld, but such funds shall be deposited as directed by the A.O. or Land Commissioner (as the case may be) to be held as unearned money pending final settlement of the title dispute, and then applied as earned or returned in accordance with such final settlement.

If the title or right of any party claiming the right to receive in kind all or any portion of the Unitized Substances allocated to a Tract is in dispute, Unit Operator at the direction of Working Interest Owners shall either:

(a) require that the party to whom such Unitized Substances are delivered or to whom the proceeds thereof are paid furnish security for the proper accounting therefor to the rightful owner if the title or right of such party fails in whole or in part, or

(b) withhold and market the portion of Unitized Substances with respect to which title or right is in dispute, and impound the proceeds thereof until such time as the title or right thereto is established by a final judgment of a court of competent jurisdiction or otherwise to the satisfaction of Working Interest Owners, whereupon the proceeds so impounded shall be paid to the party rightfully entitled thereto.

Each Working Interest Owner shall indemnify, hold harmless, and defend all other Working Interest Owners against any and all claims by any party against the interest attributed to such Working Interest Owner on Exhibit "B".

Unit Operator as such is relieved from any responsibility for any defect or failure of any title hereunder.

SECTION 22. LEASES AND CONTRACTS CONFORMED AND EXTENDED. The terms, conditions and provisions of all leases, subleases and other contracts relating to exploration, drilling, development or operation for oil or gas on lands committed to this Agreement are hereby expressly modified and amended to the extent necessary to make the same conform to the provisions hereof, but otherwise to remain in full force and effect, and the parties hereto hereby consent that the Secretary and the Land Commissioner, respectively, shall and by their approval hereof, or by the approval hereof by their duly authorized representatives do hereby establish, alter, change or revoke the drilling, producing, rental, minimum Royalty and Royalty requirements of Federal and State leases committed hereto and the regulations in respect thereto to conform said requirements to the provisions of this Agreement.

Without limiting the generality of the foregoing, all leases, subleases and

contracts are particularly modified in accordance with the following:

(a) The development and operation of lands subject to this Agreement under the terms hereof shall be deemed full performance of all obligations for development and operation with respect to each Tract subject to this Agreement, regardless of whether there is any development of any Tract of the Unit Area, notwithstanding anything to the contrary in any lease, operating agreement or other contract by and between the parties hereto, or their respective predecessors in interest, or any of them.

(b) Drilling, producing or improved recovery operations performed hereunder shall be deemed to be performed upon and for the benefit of each Tract, and no lease shall be deemed to expire by reason of failure to drill or produce wells situated on the land therein embraced.

(c) Suspension of drilling or producing operations within the Unit Area pursuant to direction or consent of the Land Commissioner and the A.O., or their duly authorized representatives, shall be deemed to constitute such suspension pursuant to such direction or consent as to each Tract within the Unitized Area.

(d) Each lease, sublease, or contract relating to the exploration, drilling, development, or operation for oil and gas which by its terms might expire prior to the termination of this Agreement, is hereby extended beyond any such term so provided therein, so that it shall be continued in full force and effect for and during the term of this Agreement.

(e) Any lease embracing lands of the State of New Mexico which is made subject to this Agreement shall continue in force beyond the term provided therein as to the lands committed hereto until the termination hereof.

(f) Any lease embracing lands of the State of New Mexico having only a portion of its land committed hereto shall be segregated as to that portion committed and that not committed, and the terms of such lease shall apply separately to such segregated portions commencing as of the Effective Date hereof. Provided, however, that notwithstanding any of the provisions of this Agreement to the contrary, such lease (including both segregated portions) shall continue in full force and effect beyond the term provided therein as to all lands embraced in such lease if oil or gas is, or has heretofore been discovered in paying quantities on some part of the lands embraced in such lease committed to this Agreement or, so long as a portion of the Unitized Substances produced from the Unit Area is, under the terms of this Agreement, allocated to the portion of the lands covered by such lease committed to this Agreement, or, at any time during the term hereof, as to any lease that is then valid and subsisting and upon which the leases or the Unit Operator is then engaged in bona fide drilling, reworking, or improved recovery operations on any part of the lands embraced therein shall remain in full force and effect so long as such operations are diligently prosecuted, and if they result in the production of oil or gas, said lease shall continue in full force and effect as to all of the lands embraced therein, so long thereafter as oil or gas in paying quantities is being produced from any portion of said lands.

(f) The segregation of any Federal lease committed to this Agreement is governed by the following provision in the fourth paragraph of Section 17(j) of the Mineral Leasing Act, as amended by the Act of September 2, 1960 (74 Stat. 781-

-784): "Any (Federal) lease heretofore or hereafter committed to any such (unit) plan embracing lands that are in part within and in part outside of the area covered by any such plan shall be segregated into separate leases as to the lands committed and the lands not committed as of the effective date of unitization; provided, however, that any such lease as to the nonunitized portion shall continue in force and effect for the term thereof but for not less than two years from the date of such segregation and so long thereafter as oil or gas is produced in paying quantities."

SECTION 23. COVENANTS RUN WITH LAND. The covenants herein shall be construed to be covenants running with the land with respect to the interest of the parties hereto and their successors in interest until this Agreement terminates, and any grant, transfer or conveyance of interest in land or leases subject hereto shall be and hereby is conditioned upon the assumption of all privileges and obligations hereunder by the grantee, transferee or other successor in interest. No assignment or transfer of any Working Interest subject hereto shall be binding upon Unit Operator until the first day of the calendar month after Unit Operator is furnished with the original, or acceptable photostatic or certified copy, of the recorded instrument or transfer; and no assignment or transfer of any Royalty Interest subject hereto shall be binding upon the Working Interest Owner responsible therefor until the first day of the calendar month after said Working Interest Owner is furnished with the original, or acceptable photostatic or certified copy, of the recorded instrument or transfer.

SECTION 24. EFFECTIVE DATE AND TERM. This Agreement shall become binding upon each party who executes or ratifies it as of the date of execution or ratification by such party and shall become effective on the first day of the calendar month next following the approval of this Agreement by the A.O., the Land Commissioner and the Commission.

If this Agreement does not become effective on or before November 1, 1989, it shall ipso facto expire on said date (hereinafter called "Expiration Date") and thereafter be of no further force or effect, unless prior thereto this Agreement has been executed or ratified by Working Interest Owners owning a combined Participation of at least seventy-five percent (75%); and at least seventy-five percent (75%) of such Working Interest Owners committed to this Agreement have decided to extend Expiration Date for a period not to exceed one (1) year (hereinafter called "Extended Expiration Date"). If Expiration Date is so extended and this Agreement does not become effective on or before Extended Expiration Date, it shall ipso facto expire on Extended Expiration Date and thereafter be of no further force and effect.

Unit Operator shall file for record within thirty (30) days after the Effective Date of this Agreement, in the office of the County Clerk of _____
Eddy County, New Mexico, where a counterpart of this Agreement has become effective according to its terms and stating further the effective date.

The terms of this Agreement shall be for and during the time that Unitized Substances are produced from the unitized land and so long thereafter as drilling, reworking or other operations (including improved recovery operations) are prosecuted thereon without cessation of more than ninety (90) consecutive days unless sooner terminated as herein provided.

This Agreement may be terminated with the approval of the Land Commissioner

and the A.O. by Working Interest Owners owning eighty percent (80%) of the Unit Participation then in effect whenever such Working Interest Owners determine that Unit Operations are no longer profitable, or in the interest of conservation. Upon approval, such termination shall be effective as of the first day of the month after said Working Interest Owners' determination. Notice of any such termination shall be filed by Unit Operator in the office of the County Clerk of Lea County, New Mexico, within thirty (30) days of the effective date of termination.

Upon termination of this Agreement, the parties hereto shall be governed by the terms and provisions of the leases and contracts affecting the separate Tracts just as if this Agreement had never been entered into.

Notwithstanding any other provision in the lease unitized under this Agreement, Royalty Owners hereby grant Working Interest Owners a period of six months after termination of this Agreement in which to salvage, sell, distribute or otherwise dispose of the personal property and facilities used in connection with Unit Operations.

SECTION 25. RATE OR PROSPECTING, DEVELOPMENT AND PRODUCTION. All production and the disposal thereof shall be in conformity with allocations and quotas made or fixed by any duly authorized person or regulatory body under any Federal or State statute. The A.O. is hereby vested with authority to alter or modify from time to time, in his discretion, the rate of prospecting and development and within the limits made or fixed by the Division to alter or modify the quantity and rate of production under this Agreement, such authority being hereby limited to alteration of modification in the public interest, the purpose thereof and the public interest to be served thereby to be stated in the order of alteration or modification; provided, further, that no such alteration or modification shall be effective as to any land of the State of New Mexico as to the rate of prospecting and development in the absence of the specific written approval thereof by the Land Commissioner and as to any lands in the State of New Mexico or privately owned lands subject to this Agreement or to the quantity and rate of production from such lands in the absence of specific written approval thereof by the Division.

Powers in this Section vested in the A.O. shall only be exercised after notice to Unit Operator and opportunity for hearing to be held not less than fifteen (15) days from notice, and thereafter subject to administrative appeal before becoming final.

SECTION 26. NONDISCRIMINATION. Unit Operator in connection with the performance of work under this Agreement relating to leases of the United States, agrees to comply with all of the provisions of Section 202(1) to (7) inclusive of Executive Order 11246, (30 F.R. 12319), which are hereby incorporated by reference in this Agreement.

SECTION 27. APPEARANCES. Unit Operator shall have the right to appear for or on behalf of any interests affected hereby before the Land Commissioner, the Department, and the Division, and to appeal from any order issued under the rules and regulations of the Land Commissioner, the Department or the Division, or to apply for relief from any of said rules and regulations or in any proceedings relative to operations before the Land Commissioner, the Department or the Division

or any other legally constituted authority; provided, however, that any other interested party shall also have the right at his or its own expense to be heard in any such proceeding.

SECTION 28. NOTICES. All notices, demands, objections or statements required hereunder to be given or rendered to the parties hereto shall be deemed fully given if made in writing and personally delivered to the party or parties or sent by postpaid certified or registered mail, addressed to such party or parties at their last known address set forth in connection with the signatures hereto or to the ratification or consent hereof or to such other address as any such party or parties may have furnished in writing to the party sending the notice, demand or statement.

SECTION 29. NO WAIVER OF CERTAIN RIGHTS. Nothing in this Agreement contained shall be construed as a waiver by any party hereto of the right to assert any legal or constitutional right or defense as to the validity or invalidity of any law of the State wherein said Unitized Lands are located, or regulations issued thereunder in any way affecting such party, or as a waiver by any such party of any right beyond his or its authority to waive; provided, however, each party hereto covenants that it will not resort to any action to partition the unitized land or the Unit Equipment.

SECTION 30. EQUIPMENT AND FACILITIES NOT FIXTURES ATTACHED TO REALTY. Each Working Interest Owner has heretofore placed and used on its Tract or Tracts committed to this Agreement various well and lease equipment and other property, equipment and facilities. It is also recognized that additional equipment and facilities may hereafter be placed and used upon the Unitized Land as now or hereafter constituted. Therefore, for all purposes of this Agreement, any such equipment shall be considered to be personal property and not fixtures attached to realty. Accordingly, said well and lease equipment and personal property is hereby severed from the mineral estates affected by this Agreement, and it is agreed that any such equipment and personal property shall be and remain personal property of the Working Interest Owners for all purposes.

SECTION 31. UNAVOIDABLE DELAY. All obligations under this Agreement requiring the Unit Operator to commence or continue improved recovery operations or to operate on or produce Unitized Substances from any of the land covered by this Agreement shall be suspended while, but only so long as, the Unit Operator, despite the exercise of due care and diligence, is prevented from complying with such obligations, in whole or in part, by strikes, acts of God, Federal, State or municipal law or agency, unavoidable accident, uncontrollable delays in transportation, inability to obtain necessary materials or equipment in open market, or other matters beyond the reasonable control of the Unit Operator whether similar to matters herein enumerated or not.

SECTION 32. NONJOINDER AND SUBSEQUENT JOINDER. Joinder by any Royalty Owner, at any time, must be accompanied by appropriate joinder of the corresponding Working Interest Owner in order for the interest of such Royalty Owner to be regarded as effectively committed. Joinder to this Agreement by a Working Interest Owner, at any time, must be accompanied by appropriate joinder to the Unit Operating Agreement in order for such interest to be regarded as effectively committed to this Agreement.

Any oil or gas interest in the Unitized Formations not committed hereto prior to submission of this Agreement to the Land Commissioner and the A.O. for final approval may thereafter be committed hereto upon compliance with the

applicable provisions of this Section and of Section 14 (Tracts Qualified for Participation) hereof, at any time up to the Effective Date hereof on the same basis of Tract Participation as provided in Section 13, by the owner or owners thereof subscribing, ratifying, or consenting in writing to this Agreement and, if the interest is a Working Interest, by the owner of such interest subscribing also to the Unit Operating Agreement.

It is understood and agreed, however, that from and after the Effective Date hereof the right of subsequent joinder as provided in this Section shall be subject to such requirements or approvals and on such basis as may be agreed upon by Working Interest Owners owning not less than sixty-five percent (65%) of the Unit Participation then in effect, and approved by the Land Commissioner and A.O. Such subsequent joinder by a proposed Working Interest Owner must be evidenced by his execution or ratification of this Agreement and the Unit Operating Agreement and, where State or Federal land is involved, such joinder must be approved by the Land Commissioner or A.O. Such joinder by a proposed Royalty Owner must be evidenced by his execution, ratification or consent of this Agreement and must be consented to in writing by the Working Interest Owner responsible for the payment of any benefits that may accrue hereunder in behalf of such proposed Royalty Owner. Except as may be otherwise herein provided, subsequent joinder to this Agreement shall be effective as of the first day of the month following the filing with the Land Commissioner and A.O. of duly executed counterparts of any and all documents necessary to establish effective commitment of any Tract or interest to this Agreement, unless objection to such joinder by the Land Commissioner or the A.O., is duly made sixty (60) days after such filing.

SECTION 33. COUNTERPARTS. This Agreement may be executed in any number of counterparts, no one of which needs to be executed by all parties and may be ratified or consented to by separate instrument in writing, specifically referring hereto, and shall be binding upon all those parties who have executed such a counterpart, ratification or consent hereto with the same force and effect as if all parties had signed the same document, and regardless of whether or not it is executed by all other parties owning or claiming an interest in the land within the described Unit Area. Furthermore, this Agreement shall extend to and be binding on the parties hereto, their successors, heirs and assigns.

SECTION 34. JOINDER IN DUAL CAPACITY. Execution as herein provided by any party as either a Working Interest Owner or a Royalty Owner shall commit all interests owned or controlled by such party; provided, that if the party is the owner of a Working Interest, he must also execute the Unit Operating Agreement.

SECTION 35. TAXES. Each party hereto shall, for its own account, render and pay its share of any taxes levied against or measured by the amount or value of the Unitized Substances produced from the unitized land; provided, however, that if it is required or if it be determined that the Unit Operator or the several Working Interest Owners must pay or advance said taxes for the account of the parties hereto, it is hereby expressly agreed that the parties so paying or advancing said taxes shall be reimbursed therefor by the parties hereto, including Royalty Owners, who may be responsible for the taxes on their respective allocated share of said Unitized Substances. No taxes shall be charged to the United States or to the State of New Mexico, nor to any lessor who has a contract with a lessee which requires his lessee to pay such taxes.

SECTION 36. NO PARTNERSHIP. The duties, obligations and liabilities of the parties hereto are intended to be several and not joint or collective. This Agreement is not intended to create, and shall not be construed to create, an associ-

ation or trust, or to impose a partnership duty, obligation or liability with regard to any one or more of the parties hereto. Each party hereto shall be individually responsible for its own obligation as herein provided.

SECTION 37. PRODUCTION AS OF THE EFFECTIVE DATE. Unit Operator shall make a proper and timely gauge of all leases and other tanks within the Unit Area in order to ascertain the amount of merchantable oil above the pipeline connection, in such tanks as of 7:00 A.M. on the Effective Date hereof. All such oil which has then been produced in accordance with established allowables shall be and remain the property of the Working Interest Owner entitled thereto, the same as if the unit had not been formed; and the responsible Working Interest Owner shall promptly remove said oil from the unitized land. Any such oil not so removed shall be sold by Unit Operator for the account of such Working Interest Owners, subject to the payment of all Royalty to Royalty Owners under the terms hereof. The oil that is in excess of the prior allowable of the wells from which it was produced shall be regarded as Unitized Substances produced after Effective Date hereof.

If, as of the Effective Date hereof, any Tract is overproduced with respect to the allowable of the wells on that Tract and the amount of over-production has been sold or otherwise disposed of, such over-production shall be regarded as a part of the Unitized Substances produced after the Effective Date hereof and shall be charged to such Tract as having been delivered to the parties entitled to Unitized Substances allocated to such Tract.

SECTION 38. NO SHARING OF MARKET. This Agreement is not intended to provide and shall not be construed to provide, directly or indirectly, for any cooperative refining, joint sale or marketing of Unitized Substances.

SECTION 39. STATUTORY UNITIZATION. If and when Working Interest Owners owning at least seventy-five percent (75%) Unit Participation and Royalty Owners owning at least seventy-five percent (75%) Royalty Interest have become parties to this Agreement or have approved this Agreement in writing and such Working Interest Owners have also become parties to the Unit Operating Agreement, Unit Operator may make application to the Division for statutory unitization of the uncommitted interests pursuant to the Statutory Unitization Act (Chapter 65, Article 14, N.M.S. 1953 Annotated). If such application is made and statutory unitization is approved by the Division, then effective as of the date of the Division's order approving statutory unitization, this Agreement and/or the Unit Operating Agreement shall automatically be revised and/or amended in accordance with the following:

(1) Section 14 of this Agreement shall be revised by substituting for the entire said section the following:

"SECTION 14. TRACTS QUALIFIED FOR PARTICIPATION. On and after the Effective Date hereof, all Tracts within the Unit Area shall be entitled to participation in the production of Unitized Substances."

(2) Section 24 of this Agreement shall be revised by substituting for the first three paragraphs of said section the following:

"SECTION 24. EFFECTIVE DATE AND TERM. This Agreement shall become effective on the first day of the calendar month next following the effective date of the Division's order approving statutory unitization upon the terms and conditions of this Agreement, as amended (if any amendment is necessary) to

conform to the Division's order; approval of this Agreement, as so amended, by the Land Commissioner; and the A.O. and the filing by Unit Operator of this Agreement or notice thereof for record in the office of the County Clerk of Eddy County, New Mexico. Unit Operator shall not file this Agreement or notice thereof for record, and hence this Agreement shall not become effective, unless within ninety (90) days after the date all other prerequisites for effectiveness of this Agreement have been satisfied, such filing is approved by Working Interest Owners owning a combined Unit Participation of at least sixty-five percent (65%) as to all Tracts within the Unit Area.

"Unit Operator shall, within thirty (30) days after the Effective Date of this Agreement, file for record in the office of the County Clerk of Eddy County, New Mexico, a certificate to the effect that this Agreement has become effective in accordance with its terms, therein identifying the Division's order approving statutory unitization and stating the Effective Date."

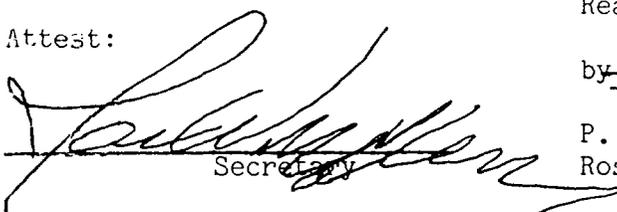
(3) This Agreement and/or the Unit Operating Agreement shall be amended in any and all respects necessary to conform to the Division's order approving statutory unitization.

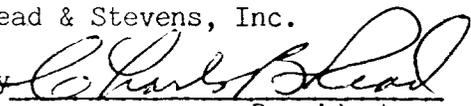
Any and all amendments of this Agreement and/or the Unit Operating Agreement that are necessary to conform said agreements to the Division's order approving statutory unitization shall be deemed to be hereby approved in writing by the parties hereto without any necessity for further approval by said parties, except as follows:

(a) If any amendment of this Agreement has the effect of reducing any Royalty Owner's participation in the production of Unitized Substances, such Royalty Owner shall not be deemed to have hereby approved the amended agreement without the necessity of further approval in writing by said Royalty Owner; and

(b) If any amendment of this Agreement and/or the Unit Operating Agreement has the effect of reducing any Working Interest Owner's participation in the production of Unitized Substances or increasing such Working Interest Owner's share of Unit Expense, such Working Interest Owner shall not be deemed to have hereby approved the amended agreements without the necessity of further approval in writing by said Working Interest Owner.

Executed as of the day and year first above written.

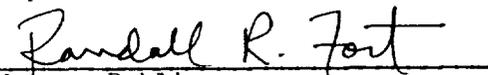
Attest:

Secretary

Read & Stevens, Inc.
by 
President
P. O. Box 1518
Roswell, New Mexico 88201

State of New Mexico)
 : ss.
County of Chaves)

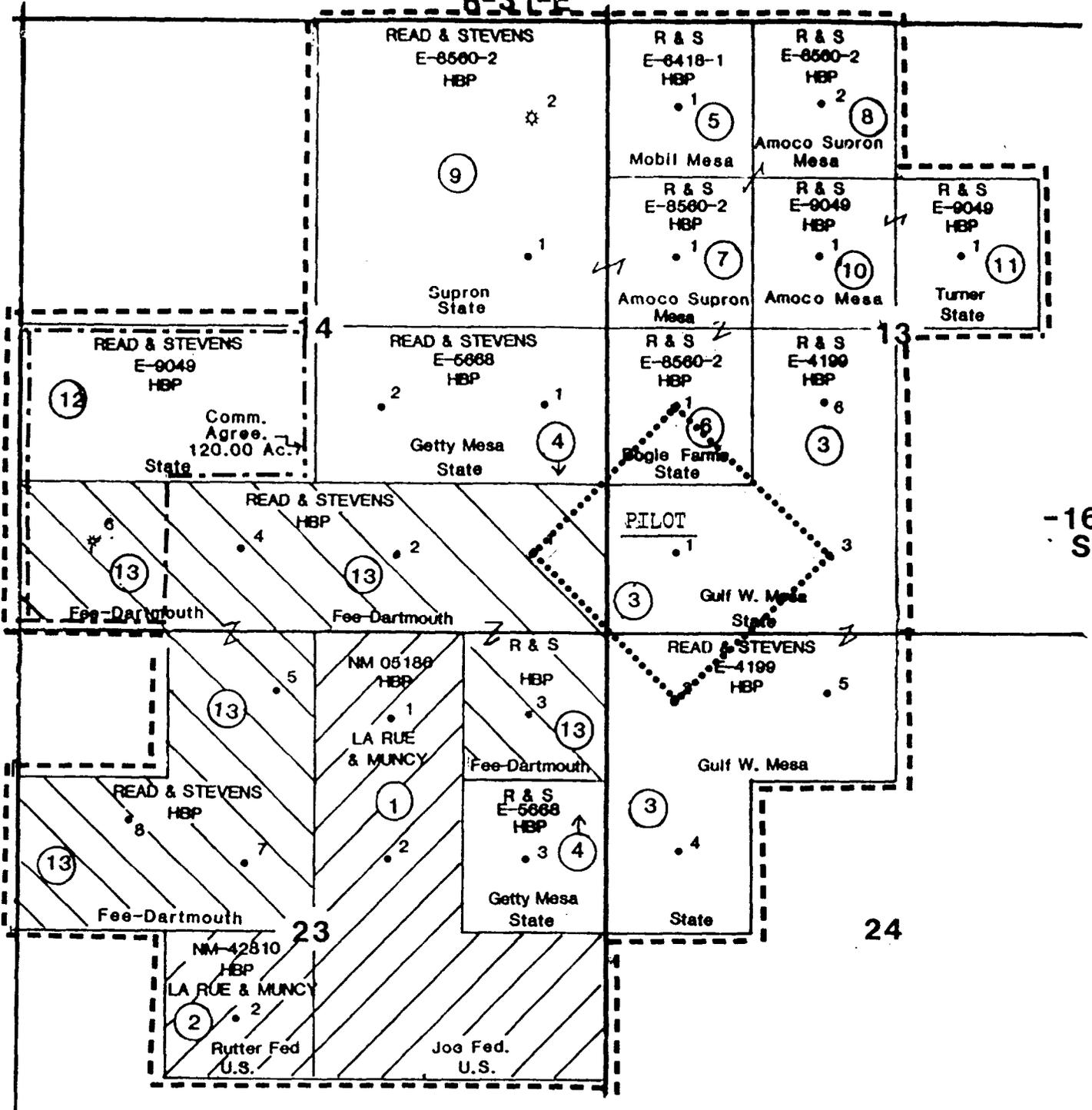
The foregoing instrument was acknowledged before me this 9th day of December, 1988 by Charles B. Read who is President Read & Stevens, Inc., a New Mexico corporation on behalf of said corporation.

My Commission Expires:
8-11-90


Notary Public

B-31-E

-16-S



LEGEND

- UNIT OUTLINE
- TRACT NUMBER
- STATE OF NEW MEXICO LANDS
840 ACRES
- ▨ FEE (PATENTED) LANDS
320 ACRES
- ▩ FEDERAL (U.S.) LANDS
200 ACRES

TOTAL UNIT AREA, 1,360 ACRES

EXHIBIT "A"

BUNKER HILL UNIT AREA
 Parts Sections 13, 14, 23, 24,
 T-16-S, R-31-E, NMPM
 EDDY COUNTY, NEW MEXICO

EXHIBIT "B"
SCHEDULE OF LANDS AND LEASES

BUNKER HILL SECONDARY RECOVERY UNIT
EDDY COUNTY, NEW MEXICO

TRACT NO.	DESCRIPTION	ACRES	SERIAL NO. EXPIRATION	LESSEE OF RECORD	OVERRIDING ROYALTY	BASIC ROYALTY	WORKING INTEREST (OPERATING RIGHTS)		
							NAME	COST (DECIMAL)	PRODUCTION (DECIMAL)
<u>ALL LANDS ARE LOCATED IN T-16-S, R-31-E, NMPM</u>									
<u>FEDERAL LANDS</u>									
1.	Sec. 23: W $\frac{1}{2}$ NE $\frac{1}{4}$, N $\frac{1}{2}$ SE $\frac{1}{4}$	160.00	NM-05186 HBP	Featherstone Development Corporation 50%		U.S.A. .1250	Olen F. Featherstone II Charles W. Hicks H & S Oil Company Leland Wittkopp A. Nelson Muncy Martin B. Muncy T.C. Stromberg C.E. LaRue & B.N. Muncy, Jr.	.0500 .1000 .2500 .1000 .0500 .0500 .0500 .3500	.0375 .0750 .1875 .0750 .0375 .0375 .0375 .2625
2.	Sec. 23: NE $\frac{1}{4}$ SW $\frac{1}{4}$ "Rutter Federal" Unit Participation = 1.732%	40.00	NM-42810 HBP	A.W. Rutter, Jr. .1875 A.W. Rutter .1875 G.L. Wilbanks .1250 Harold E. Jones .5000	F.C. Jones .07500 A.W. Rutter, Jr. .01875 A.W. Rutter .01875 G.L. Wilbanks .01250 Harold E. Jones .05000	U.S.A. .1250	H & S Oil Company Leland Wittkopp A. Nelson Muncy Martin B. Muncy T.C. Stromberg C.E. LaRue & B.N. Muncy, Jr. Olen F. Featherstone Charles W. Hicks	.2500 .1000 .0500 .0500 .0500 .3500 .0500 .1000	.1750 .0700 .0350 .0350 .0350 .2450 .0350 .0700
								<u>1.000</u>	<u>.7500</u>
								<u>1.0000</u>	<u>.7000</u>

2 (two) Tract Federal Lands, 200.00 Acres,
14.71% of Unit Area, 9.909% Unit Participation

STATE OF NEW MEXICO LANDS

3.	Sec. 13: SW $\frac{1}{2}$ SW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$,	240.00	E-4199 HBP	State of NM .1250	Chevron USA, Inc. 100%	Chevron USA, Inc. .1250	William E. Read Raymond R. Trollinger, Jr. FISCO, INC. Charles B. Read Norman L. Stevens, Jr. Est. John H. Miller, Jr. W.W. Shipley, IV Norman L. Stevens, III Earle C. May Lawrence & Julie Rennett Richard F. Deich Elliott-Hall Company Charles B. Read Trust "A" T.T. Sanders, Jr. Harriet C. Miller NGC Energy Company Marion T. Turner	.0625 .0500 .0250 .0500 .0650 .0275 .1250 .0100 .0200 .0200 .0100 .0500 .0500 .0500 .0275 .2950 .0625	.046875 .037500 .018750 .037500 .048750 .020625 .093750 .007500 .015000 .015000 .007500 .037500 .037500 .037500 .037500 .020625 .221250 .046875
	Sec. 24: N $\frac{1}{2}$ NW $\frac{1}{4}$, SW $\frac{1}{2}$ NW $\frac{1}{4}$								
	"Gulf West Mesa" Unit Participation = 22.565%								
								<u>1.0000</u> .750000	

4.	Sec. 14: $N\frac{1}{2}SE\frac{1}{4}$	120.00	E-5668	State of NM	Texaco Producing, Inc.*	Texaco Producing, Inc.	William E. Read	.0164620	.01234650
	Sec. 23: $SE\frac{1}{4}NE\frac{1}{4}$		HBP	.1250	100%	.1250	Joe Wigley	.0100000	.00750000
	"Getty Mesa"						Lantana Oil Company	.0200000	.01500000
	Unit Participation = 11.723%						FISCO, Inc.	.0775000	.05797500
							Charles B. Read	.1000000*	.07500000*
							Norman L. Stevens, Jr.	.0900000**	.06750000**
							First Century Oil Inc.	.0275000	.02047500
							D.H.B. Partnership	.0069270	.00519525
							Betty R. Young	.0100000	.00750000
							James B. Read	.0100000	.00750000
							Norman L. Stevens, III	.0200000	.01500000
							Barbara J. Stevens	.0100000	.00750000
							Bruce A. Stubbs	.0300000	.02250000
							Read & Stevens, Inc.	.0200000	.01500000
							Carolyn Beall	.0100000	.00750000
							F.I.C., Inc.	.0566660	.04136618
							Trustee, Henry Jaffe	.0100000	.00750000
							Michael Jaffe	.0100000	.00750000
							Charles R. Meeker, III	.0050000	.00375000
							Charles R. Meeker, III, Trust	.0050000	.00375000
							Lawrence J. Sheehan	.0100000	.00750000
							Vernon L. Burkhead	.0050000	.00375000
							Henry L. Taylor	.0300000	.02190000
							Frank McGinnis	.0050000	.00375000
							John L. Hauer	.0100000	.00750000
							James R. Keay	.0100000	.00750000
							Gloria McE. Read	.0100000	.00750000
							David M. Stevens	.0050000	.00375000
							Patricia S. Bell	.0050000	.00375000
							Michael Norton, III	.0100000	.00750000
							Est. James F. Elliott	.0050000	.00365000
							NGC Energy Company	.2899450	.21745875
							Marion T. Turner	.0100000	.00750000
							Charles B. Read	.0166666*	.0125000*
							Norman L. Stevens, Jr.	.0166667**	.0125000**
							Nadine Loveless Smith	.0083333	.00625000
							Carolyn L. Schlicher	.0041667	.00312500
							Lucinda Loveless	.0041667	.00312500
								<u>1.0000000</u>	<u>.74786668</u>

* State title in Getty Oil Co.

Cost Revenue
 *Read Total = $\frac{.1166666}{.1166666}$ & $\frac{.0875000}{.0875000}$
 **Stevens Total = $\frac{.1066667}{.1066667}$ & $\frac{.0800000}{.0800000}$

5.	Sec. 13: NW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00	E-6418-1 HBP	State of NM Mobil Producing TX & NM, Inc. 100%	Mobil Producing TX & NM, Inc. .0625	William E. Read Warren B. Patterson John Turner Fisco, Inc. Charles B. Read Norman L. Stevens, Jr. First Century Oil Inc. Est. John H. Miller, II W.W. Shipley, IV Bruce A. Stubbs Read & Stevens, Inc. Yankee Ventures/82 J.E. Simmons Trust "A" Beulah Simmons Trust "A" J.E. Simmons Trust "B" Beulah Simmons Trust "B" Arnold Ballard Haskell H. Bass, Jr. Pauline M. Lepley Westway Petro J/V Stevens & Co., Inc.	.0507813 .0081250 .0253906 .0203125 .0812500 .0507813 .0710936 .0325000 .1015626 .0081250 .0121875 .0081250 .0253906 .0253906 .0253907 .0253907 .0081250 .0081250 .0081250 .2041406 .0121875	.06250 .01000 .03125 .02500 .10000 .06250 .08750 .04000 .12500 .01000 .01500 .01000 .03125 .03125 .03125 .03125 .01000 .01000 .01000 .25125 .01500	<u>1.0000</u> .8125000
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"Mobil West Mesa"
Unit Participation = 2.162%

6.	Sec. 13: NW $\frac{1}{4}$ SW $\frac{1}{4}$	40.00	E-8560-2 HBP	State of NM .1250	Union Texas Explora- tion Corp. & Enron Oil & Gas Co. 100%	Union Texas Explora- tion Corp. .03125 Enron Oil & Gas Co. .03125	William E. Read Warren B. Patterson John W. Turner Gerald H. Wright Charles B. Read J.E. Simmons Trust "A" Beulah Simmons Trust "A" J.E. Simmons Trust "B" Beulah Simmons Trust "B" Est. John H. Miller, II W.W. Shipley, IV Stevens & Co., Inc.	.06250 .12500 .06250 .12500 .18750 .03125 .03125 .03125 .03125 .12500 .12500 .06250	.04882812 .09765625 .04882812 .09765625 .14648440 .02441406 .02441406 .02441406 .02441407 .09765625 .09765624 .04882812	
						William J. LeMay .03125				<u>1.00000</u> .78125000

7.	Sec. 13: SW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00	E-8560-2 HBP	State of NM .1250	Union Texas Explora- tion Corp. & Enron Oil & Gas Co. 100%	Union Texas Explora- tion Corp. .03125 Enron Oil & Gas Co. .03125	William E. Read Warren B. Patterson FISCO, Inc. Charles B. Read Norman L. Stevens, Jr. First Century Oil Inc. W.W. Shipley, IV Bruce A. Stubbs David S. Harle Read & Stevens, Inc. Yankee Ventures/82 J.E. Simmons Trust "A" Beulah L. Simmons Trust "A" J.E. Simmons Trust "B" Beulah L. Simmons Trust "B" Arnold Ballard Haskell A. Bass, Jr. Pauline M. Lepley NGC Energy Co. Marion T. Turner Stevens & Co. Inc.	.06250 .01000 .02500 .10000 .06250 .08750 .12500 .01000 .00500 .01500 .01000 .03125 .03125 .03125 .03125 .01000 .01000 .01000 .29125 .03125 .01000	.0488281 .0078125 .0195313 .0781250 .0488281 .0683594 .0976562 .0078125 .0039063 .0117188 .0078125 .0244141 .0244140 .0244140 .0244141 .0078125 .0078125 .0078125 .2275390 .0244141 .0078125	
	Sec. 13: SW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00			Union Texas Explora- tion Corp. & Enron Oil & Gas Co. 100%	William J. LeMay .03125				<u>1.00000</u> .7812500
	"Amoco Supron Mesa"	Unit Participation = 4.812%								

8.	Sec. 13: NE $\frac{1}{2}$ NW $\frac{1}{4}$	40.00	E-8560-2 HBP	State of NM .1250	Union Texas Explora- tion Corp. & Enron Oil & Gas Co. 100%	Union Texas Explora- tion Corp. .06250 Enron Oil & Gas Co. .06250	William E. Read Warren B. Patterson FISCO, Inc. Charles B. Read Norman L. Stevens, Jr. First Century Oil Inc. W.W. Shipley, IV Bruce A. Stubbs David S. Harle Read & Stevens, Inc. Yankee Ventures/82 J.E. Simmons Trust "A" Beulah Simmons Trust "A" J.E. Simmons Trust "B" Beulah Simmons Trust "B" Arnold Ballard Haskell H. Bass, Jr. Pauline M. Lepley Westway Petro J/V Marion T. Turner Stevens & Co., Inc.	.06250 .01000 .02500 .10000 .06250 .08750 .12500 .01000 .00500 .01500 .01000 .03125 .03125 .03125 .03125 .01000 .01000 .01000 .29125 .03125 .01000	.0468750 .0075000 .0187500 .0750000 .0468750 .0656250 .0937500 .0075000 .0037500 .0112500 .0075000 .0234375 .0234375 .0234375 .0234375 .0075000 .0075000 .0075000 .2184375 .0234375 .0075000	
									<u>1.00000</u>	<u>.7500000</u>

10.	Sec. 13: SE $\frac{1}{4}$ NW $\frac{1}{4}$	40.00	E-9049 HBP	State of NM	Amoco Production Co. 100%	Amoco Production Co. .0546875	William E. Read Warren B. Patterson Fisco, Inc. Charles B. Read Norman L. Stevens, Jr. First Century Oil, Inc. W.W. Shiple, IV Bruce A. Stubbs Read & Stevens, Inc. Yankee Ventures/82 J.E. Simmons Trust "A" Beulah Simmons Trust "A" J.E. Simmons Trust "B" Beulah Simmons Trust "B" Arnold Ballard Haskell H. Bass, Jr. Pauline M. Lepley NGC Energy Co. Marion T. Turner Stevens & Co., Inc.	.06250 .01000 .02500 .10000 .06250 .08750 .12500 .01000 .01500 .01000 .03125 .03125 .03125 .03125 .01000 .01000 .01000 .29125 .03125 .01500	.0512695 .0082031 .0205078 .0820313 .0512695 .0717773 .1025390 .0082032 .0123047 .0082031 .0256347 .0256348 .0256348 .0256348 .0082031 .0082031 .0082031 .2389160 .0256348 .0123048
	"Amoco West Mesa" Unit Participation - 3.480%							1.00000	.8203125

11.	Sec. 13: SW $\frac{1}{4}$ NE $\frac{1}{4}$	40.00	E-9049 HBP	State of NM .1250	Amoco Production Co. 100%	Amoco Production Co. .1250 Sam Smith .0021333	William E. Read Joe Wigley Lantana Oil Co. Fisco, Inc. Charles B. Read Norman L. Stevens, Jr. First Century Oil Inc. D.H.B. Partnership Betty R. Young James B. Read Norman L. Stevens, III Barbara J. Stevens Bruce A. Stubbs Read & Stevens, Inc. Carolyn Beall F.I.C., Inc. Henry Jaffe, Trustee Michael Jaffe Charles R. Meeker, III Charles R. Meeker, III, Trust Lawrence J. Sheehan Vernon L. Burkhead Henry L. Taylor Frank McGinnis John L. Hauer James W. Keay Gloria McE. Read David M. Stevens Patricia Stevens Bell Michael Norton, III Est. James F. Elliott NGC Energy Co. Marion T. Turner Charles B. Read Norman L. Stevens, Jr. Nadine Loveless Smith Carolyn L. Schlicher Lucinda Loveless	.016462 .010000 .020000 .077500 .100000* .090000** .027500 .006927 .010000 .010000 .020000 .010000 .030000 .020000 .010000 .056666 .010000 .010000 .005000 .005000 .010000 .005000 .030000 .005000 .010000 .010000 .010000 .005000 .005000 .010000 .005000 .289945 .010000 .0166666* .0166667** .0083333 .0041667 .0041667 <u>1.0000000</u>	.0123465 .0075000 .0150000 .0579750 .0750000* .0675000** .0204750 .0051952 .0075000 .0075000 .0150000 .0075000 .0225000 .0150000 .0075000 .0413662 .0075000 .0075000 .0037500 .0037500 .0075000 .0037500 .0219000 .0037500 .0075000 .0075000 .0075000 .0037500 .0037500 .0075000 .0036500 .2174588 .0075000 .0125000* .0125000** .0062500 .0031250 .0031250 <u>.7478667</u>
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*Read Total = $\frac{\text{Cost}}{\text{Production}}$ = .1166666 & .0875000
 **Stevens Total = .1066667 & .0800000

Note: This following Tract 12, was communitized under date of April 15, 1983 with 40 Acres of Fee Lands, (SW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 14) forming a 120 acre Proration Unit. The ownership and division of interest shown hereon is applicable to the 120 acre Proration Unit (1/3 Fee, 2/3 State, Lands).

12.	Sec. 14: N $\frac{1}{2}$ SW $\frac{1}{4}$	80.00	E-9049 HBP	State of NM .0833333 (2/3 x .125)	100% Amoco Production Co. .0833334 (2/3 x .125)	Amoco Production Co.	William E. Read Joe Wigley Raymond R. Trollinger, Jr. Fisco, Inc. Charles B. Read Norman L. Stevens, Jr. First Century Oil, Inc. Est. John H. Miller, II W.W. Shipley, IV Norman L. Stevens, III Earle May Lawrence & Julie Rennett Richard F. Deich Elliott Hall Co. T.T. Sanders, Jr. Bruce A. Stubbs W.W. Shipley, V Bert & Sherry Blackard NGC Energy Company Marion T. Turner	.06250 .01000 .05000 .02500 .05000 .06500 .05000 .02750 .06250 .01000 .02000 .02000 .01000 .05000 .05000 .05000 .01000 .03125 .03125 .30250 .06250	.0468750 .0075000 .0375000 .0187500 .0375000 .0487500 .0375000 .0206250 .0468750 .0075000 .0150000 .0150000 .0075000 .0375000 .0375000 .0075000 .0234375 .0234375 .2268750 .0468750
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Communitized Fee Lands - Included in this Tract 12. See Tract 13.

Sec. 14: SW $\frac{1}{4}$ SW $\frac{1}{4}$	40.00	n/a Fee HBP	Midwest Invest- ment Co. .0416667 (1/3 x 1/2 x .25) Bogle Farms, Inc. .0208333 (1/3 x 1/4 x .25) Trustees of Dart- mouth College .020833 (1/3 x 1/4 x .25)	100% Read & Stevens, Inc.
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(Tract total 120.00 Ac.)

"Dartmouth #6 Communitization"
Unit Participation = 1.565%
(1.043% Credited to State Lands
.522% Credited to Fee Lands)

10 Tracts State of New Mexico Lands, 840.00 Acres
61.76% of Unit Area, 63.449% Unit Participation

1.00000
.7500000

SUMMARY - EXHIBIT "B"

ROYALTY AND OVERRIDING ROYALTY

<u>Name</u> <u>Tracts</u>	<u>Tract</u> <u>Participation</u>	<u>Unit</u> <u>Participation</u>
<u>Amoco Production Co.</u>		
10.	.00190313	
11.	.00460375	
12.	.00130417	
		<hr/> .00781105
<u>Bogle Farms, Inc.</u>		
12.	.00032604	
13.	.01632563	
		<hr/> .01665167
<u>Chevron USA, Inc.</u>		
3.	.02820625	.02820625
<u>Trustees Dartmouth College</u>		
12.	.00032604	
13.	.01632563	
		<hr/> .01665167
<u>Enron Oil & Gas Co.</u>		
6.	.00178031	
7.	.00150375	
8.	.00104438	
9.	.00413250	
		<hr/> .00846094
<u>Featherstone Development Corp.</u>		
1.	.00511063	.00511063
<u>Olen F. Featherstone, II</u>		
1.	.00511063	.00511063
<u>F. C. Jones</u>		
2.	.00129900	.00129900
<u>Harold E. Jones</u>		
2.	.00129900	.00129900
<u>William J. LeMay</u>		
6.	.00178031	
7.	.00150375	
		<hr/> .00328406
<u>Midwest Investment Co.</u>		
12.	.00065208	
13.	.03265125	
		<hr/> .03330333
<u>Mobil Producing, TX & NM</u>		
5.	.00135125	.00135125
<u>A. W. Rutter</u>		
2.	.00032475	.00032475
<u>A. W. Rutter, Jr.</u>		
2.	.00032475	.00032475
<u>Samuel Smith</u>		
4.	.00025009	
11.	.00007857	
		<hr/> .00032866

<u>Name</u> <u>Tracts</u>	<u>Tract</u> <u>Participation</u>	<u>Unit</u> <u>Participation</u>
<u>Texaco Producing, Inc.</u>		
4.	.01465375	.01465375
<u>Union Texas Exploration Corp.</u>		
6.	.00178031	
7.	.00150375	
8.	.00104438	
9.	.00413250	
		<hr/>
		.00846094
<u>G. L. Wilbanks</u>		
2.	.00021650	.00021650
<u>State of New Mexico</u>		
3.	.02820625	
4.	.01465375	
5.	.00270250	
6.	.00712125	
7.	.00601500	
8.	.00208875	
9.	.00826522	
10.	.00435000	
11.	.00460375	
12.	.00130417	
		<hr/>
		.07931042
<u>United States, BLM-MMS</u>		
1.	.01022125	
2.	.00216500	
		<hr/>
		.01238625

UNIT OPERATING AGREEMENT
BUNKER HILL UNIT
EDDY COUNTY, NEW MEXICO

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UNIT OPERATING AGREEMENT
BUNKER HILL UNIT
EDDY COUNTY, NEW MEXICO

THIS AGREEMENT, entered into as of the 1st day of November, 1988, by the parties who have signed the original of this instrument, a counterpart thereof or other instrument agreeing to be bound by the provisions hereof;

W I T N E S S E T H:

WHEREAS, the parties hereto, as Working Interest Owners have executed that certain agreement entitled "Unit Agreement, Bunker Hill Unit, Eddy County, New Mexico" hereinafter referred to as "Unit Agreement", and which, among other things, provides for a separate agreement to be made and entered into by and between Working Interest Owners to provide for Unit Operations therein defined:

NOW, THEREFORE, in considerations of the mutual agreements herein set forth, it is agreed as follows:

ARTICLE 1

Confirmation of Unit Agreement. The Unit Agreement is hereby confirmed and incorporated herein by reference and made a part of this Agreement. The definitions in the Unit Agreement are adopted for all purposes of this Agreement. In the event of any conflict between the Unit Agreement and this Agreement, the Unit Agreement shall prevail.

ARTICLE 2
EXHIBITS

The following exhibits are incorporated herein by reference or attachment:

1. Exhibits "A" and "B" of the Unit Agreement.
2. Exhibit "C", Parts I and II, attached hereto, is a summary showing each Working Interest Owner's Interest in each Tract, the percentage of total Unit Participation attributable to each such interest, and the total Unit Participation of each Working Interest Owner.
3. Exhibit "D", attached hereto, contains insurance provisions applicable to Unit Operations.
4. Exhibit "E", attached hereto, is the Accounting Procedure applicable to Unit Operations. In the event of conflict between this agreement and Exhibit "E", this agreement shall prevail.
5. Exhibit "F", attached hereto, contains Certificate of Compliance provisions provided for in Article 21.
6. Exhibit "G", attached hereto, is the Gas Balancing Agreement applicable to Unit Operations.
7. Revision of Exhibits. Whenever Exhibit "A" or "B" are revised, Exhibit "C" shall be revised accordingly and be effective as of the same date. Unit Operator shall also revise Exhibit "C" from time to time as required to conform to changes in ownership of which Unit Operator has been notified as provided in the Unit Agreement.
8. Reference to Exhibits. When reference is made herein to an exhibit, it is to the exhibit as originally attached or, if revised, to the last revision.

ARTICLE 3
SUPERVISION OF OPERATIONS BY
WORKING INTEREST OWNERS

1. Overall Supervision. Subject to the other terms and provisions of this agreement and of the Unit Agreement, Working Interest Owners shall exercise overall supervision and control of all matters pertaining to the Unit Operations pursuant to this Agreement and the Unit Agreement. In the exercise of such power, each Working Interest Owner shall act solely in its own behalf in the capacity of an individual owner and not on behalf of the owners as an entirety.

2. Particular Powers - Duties. The Working Interest Owners, using the voting procedures given in Article 4.3, unless otherwise specifically provided in this Agreement, shall decide matters pertaining to Unit Operations which include, but are not limited to the following:

a. Method of Operation. The kind, character and method of operation, including any type of pressure maintenance, secondary recovery or other enhanced recovery program to be employed.

b. Drilling of Wells. The drilling, deepening, or sidetracking of any well within the Unit Area for the production of Unitized Substances; and the drilling of any well for injection, salt water disposal or for any other Unit purpose.

c. Well Workovers and Change of Status. The reworking, recompleting or repairing of any well for the purpose of production of Unitized Substances reasonably estimated to require an expenditure in excess of the expenditure limitation specified in Article 3.2.d. hereinbelow; and the abandonment or change of status of any well in the Unit, or the use of any such well for injection or other purposes.

d. Expenditures. Making of any single expenditure in excess of Fifteen thousand (\$15,000.00) Dollars, except as provided in Article 7.9 hereof; provided that approval by Working Interest Owners for the drilling, sidetracking, reworking, drilling deeper or plugging back of any well shall include approval of all necessary expenditures required therefor and for completing, testing and equipping the same, including necessary flow lines, separators and lease tankage.

e. Amendment of Overhead Rates. The amendment of the overhead rates provided for in Section III of Exhibit "E" if, as set forth in Section III.3 of Exhibit "E", such rates are found to be insufficient or excessive.

f. Disposition of Surplus Facilities. Selling or otherwise disposing of any major item of surplus unit material or equipment, the current list price of new equipment similar thereto being Fifteen thousand (\$15,000.00) Dollars or more.

g. Appearance Before a Court or Regulatory Body. The designating of a representative to appear before any court or regulatory body in matters pertaining to unit operations; provided, however, that the authorization by Working Interest Owners of the designation of any such representatives shall not prevent any Working Interest Owner from appearing in person or from designating another representative in its own behalf.

h. Audit Exceptions. Any unresolved audit exceptions relating to audits as provided for in Exhibit "E".

i. Assignments to Committees. The appointment or designation of committees or subcommittees necessary for the study of any problem in connection with Unit Operations.

j. The selection of a successor to the Unit Operator.

k. The enlargement of the Unit Area.

l. The adjustment and readjustment of investments.

m. Acquisition of Wells for Unit Operations.

n. The termination of the Unit Agreement.

ARTICLE 4
MANNER OF EXERCISING SUPERVISION

1. Designation of Representatives. Each Working Interest Owner, other than individuals, shall advise Unit Operator in writing the names and addresses of its representative and alternate who are authorized to represent and bind it in respect to any matter pertaining to the development and

operation of the Unit area. Such representative or alternate may be changed from time to time by written notice to Unit Operator. Individual Working Interest Owners shall represent themselves, or may designate, in writing, an agent to so represent.

2. Meetings. All meetings of Working Interest Owners for the purpose of considering and acting upon any matter pertaining to the development and operation of the Unit area shall be called by Unit Operator upon its own motion or at the request of two or more Working Interest Owners having a total Unit Participation of not less than ten (10%) percent. No meeting shall be called on less than fourteen (14) days' advance written notice, with agenda for the meeting attached. The Working Interest Owners attending such meeting shall not be prevented from amending items included in the agenda or from deciding such amended item or from deciding other items presented at such meeting. The representative of Unit Operator shall be Chairman of each meeting.

3. Voting Procedure. Working Interest Owners shall act upon and determine all matters coming before them, as follows:

a. Voting Interest. Each Working Interest Owner shall have a voting interest equal to its Unit Participation in effect at the time of the vote.

b. Vote Required. Unless otherwise provided herein or in the Unit Agreement, Working Interest Owners shall determine all matters by the affirmative vote of four or more Working Interest Owners having a combined voting interest of at least sixty-five percent (65%); however, should any one Working Interest Owner have more than thirty percent (30%) voting interest, its negative vote or failure to vote shall not defeat a motion and such motion shall pass if approved by Working Interest Owners having a majority voting interest, unless two or more additional Working Interest Owners having a combined voting interest of at least five percent (5%) likewise vote against the motion or fail to vote.

c. Vote at Meeting by Non-Attending Working Interest Owners. Any Working Interest Owner not represented at a meeting may vote on any item included in the agenda of the meeting by letter or telegram addressed to the Chairman of the meeting, provided such vote is received prior to the submission of such item to vote. Such vote shall not be counted with respect to any item on the agenda which is amended at the meeting.

d. Poll Votes. Working Interest Owners may decide any matter by vote taken by letter or telegram, provided the matter is first submitted in writing to each Working Interest Owner and no meeting on the matter is called, as provided in Article 4.2, within fourteen (14) days after such proposal is dispatched to Working Interest Owners. Such vote will be final and Unit Operator will give prompt notice of the results of such voting to all Working Interest Owners.

ARTICLE 5
INDIVIDUAL RIGHTS AND PRIVILEGES
OF WORKING INTEREST OWNERS

1. Reservation of Rights. Working Interest Owners severally reserve to themselves all their rights, powers, authority and privileges, except as expressly otherwise provided in this Agreement and in the Unit Agreement.

2. Specific Rights. Each Working Interest Owner shall have, among others, the following specific rights and privileges:

a. Access to Unit Area. Access to the Unit Area, at all reasonable times, to inspect the operations hereunder and all wells and records and data pertaining thereto.

b. Reports by Request. The right to receive from Unit Operator, upon written request, copies of all reports to any governmental agency, reports of crude oil runs and stocks, inventory reports and all other data pertaining to Unit Operations. The cost of gathering and furnishing data not ordinarily furnished by Unit Operator to all Working Interest Owners shall be charged solely to Working Interest Owners requesting the same.

c. Audits. The right to audit the accounts of Unit Operator according to the provisions of Exhibit "E".

ARTICLE 6
UNIT OPERATOR

1. Unit Operator. Read & Stevens, Inc. is hereby designated as Unit Operator.

2. Resignation or Removal. Unit Operator may resign at any time. Unit Operator may be removed at any time by the affirmative vote of Working Interest Owners having Eighty percent (80%) or more of the voting interest remaining after excluding the voting interest of Unit Operator. Such resignation or removal shall not become effective until sixty (60) days after the first day of the month following the resignation or removal, unless a successor Unit Operator has taken over Unit Operations prior to the expiration of such period.

3. Selection of Successor. Upon the resignation or removal of Unit Operator, a successor Unit Operator shall be selected by Working Interest Owners as provided in Section 8, of the Unit Agreement.

4. Records and Information. The Unit Operator resigning or being removed shall give complete cooperation to the new Unit Operator and shall deliver to its successor all records and information necessary to the discharge of the new Unit Operator's duties and obligations.

ARTICLE 7
POWERS AND DUTIES OF UNIT OPERATOR

1. Exclusive Rights to Operate Unit. Subject to the other provisions of this Agreement, and to the orders, directions and limitations rightfully given or imposed by Working Interest Owners, Unit Operator shall have the exclusive right, and shall be obligated, to conduct Unit Operations.

2. Workmanlike Conduct. Unit Operator shall conduct all operations hereunder in a good and workmanlike manner and, in the absence of specific instructions from Working Interest Owners, shall have the right and duty to conduct such operations in the same manner as would a prudent operator under the same or in similar circumstances. Unit Operator shall freely consult with Working Interest Owners and keep them advised of all matters arising in connection with such operations which Unit Operator, in the exercise of its best judgment, considers important. Unit Operator shall not be liable to Working Interest Owners for damages, unless such damages result from the gross negligence or willful misconduct of Unit Operator.

3. Liens and Encumbrances. Unit Operator shall endeavor to keep the land and leases in the Unit Area free from all liens and encumbrances occasioned by its operations hereunder, except the lien of Unit Operator granted hereunder.

4. Employees. The number of employees used by Unit Operator in conducting operations hereunder, the selection of such employees, the hours or labor and the compensation for services to be paid any and all such employees shall be determined by Unit Operator. Such employees shall be employed by Unit Operator.

5. Records. Unit Operator shall keep true and correct books, accounts and records of its operations hereunder.

6. Reports to Working Interest Owners. Unit Operator shall furnish to each Working Interest Owner periodic reports of the development and operation of the Unit Area.

7. Reports to Governmental Authorities. Unit Operator shall make all reports to governmental authorities that it has the duty to make as Unit Operator.

8. Engineering and Geological Information. Unit Operator shall furnish to each Working Interest Owner, upon written request, a copy of the log of, and copies of engineering and geological data pertaining to any wells drilled by Unit Operator at Unit expense.

9. Expenditures. Unit Operator is authorized to make single expenditures not in excess of Fifteen thousand (\$15,000.00) Dollars without prior approval of Working Interest Owners. If an emergency occurs, Unit Operator may immediately make or incur such expenditures as in its opinion are required to deal with the emergency. Unit Operator shall report to Working Interest Owner, as promptly as possible, the nature of the emergency and the action taken.

10. Wells Drilled by Unit Operator. All wells drilled by Unit Operator shall be at the usual rates prevailing in the area. Unit Operator may employ its own tools and equipment, but the charge therefor shall not exceed the prevailing rate in the area, and the work shall be performed by Unit Operator under the same terms and conditions as are usual in the area in contracts of independent contractors doing work of a similar nature.

11. Border Agreements. Unit Operator may, after approval by Working Interest Owners, enter into border agreements with respect to lands adjacent to the Unit Area for the purpose of coordinating operations.

ARTICLE 8 TAXES

1. Ad Valorem Taxes. Beginning with the first calendar year after the Effective Date hereof, Unit Operator shall make and file all necessary property tax renditions, whether on real or personal property and returns with the proper taxing authorities with respect to all property of each Working Interest Owner used or held by Unit Operator for Unit Operations. Unit Operator shall settle assessments arising therefrom. All such property taxes shall be paid by Unit Operator and charged to the joint account; however, if the interest of a Working Interest Owner is subject to a separately assessed overriding royalty interest production payment or other interest in excess of a one-eighth (1/8) royalty, such Working Interest Owner shall notify Unit Operator of such interest prior to the rendition date land shall be given credit for the reduction in taxes paid resulting therefrom. Any Working Interest Owner dissatisfied with any assessment of its interest in real or personal property shall have the right, at its own expense, and after due notice to the Unit Operator, to protest and resist any such assessment.

2. Taxes and Assessments. Each Working Interest Owner shall pay or cause to be paid all production, severance, gathering, windfall profits tax and other taxes and assessments imposed upon or on account of the production or handling of its share of Unitized Substances.

3. Income Tax Election. Notwithstanding any provisions herein that the rights and liabilities hereunder are several and not joint or collective, or that this Agreement and operations hereunder shall not constitute a partnership, if for Federal income tax purposes this Agreement and the operations hereunder are regarded as a partnership, then each of the Parties hereto elects to be excluded from the application of all of the provisions of Subchapter K, Chapter 1, Subtitle A, of the Internal Revenue Code of 1954, as permitted and authorized by Section 761 of the Code and the regulations promulgated thereunder. Unit Operator is authorized and directed to execute on behalf of each of the Parties hereto such evidence of this election as may be required by the Secretary of the Treasury of the United States or the Federal Internal Revenue Service, including specifically, but not by way of limitation, all of the returns, statements, and the data required by Federal Regulations 1.761-1(a). Should there be any requirement that each Party hereto give further evidence of this election, each such Party shall execute such documents and furnish such other evidence as may be required by the Federal Internal Revenue Service or as may be necessary to evidence this election. Each party hereto further agrees not to give any notices or take any other action inconsistent with the election made hereby. If any present or future income tax laws of the state in which the Unit Area is located or any future income tax law of the United States contain provisions similar to those in Subchapter K, Chapter 1, Subtitle A, of the Internal Revenue Code of 1954, under which an election similar to that provided by Section 761 of the Code is permitted, each of the Parties hereto agrees to make such election as may be permitted or required by such laws. In making the foregoing election, each of the Parties states that the income

derived by such Party from the operations under this Agreement can be adequately determined without the computation of partnership taxable income.

ARTICLE 9
INSURANCE

- Insurance. Unit Operator, with respect to Unit Operations, shall:
- (a) comply with the Workmen's Compensation Laws of the State of New Mexico,
 - (b) carry Employer's Liability and other insurance required by the laws of the State of New Mexico, and
 - (c) provide other insurance as set forth in Exhibit "D".

ARTICLE 10
ADJUSTMENT OF INVESTMENTS

1. Personal Property Taken Over. Upon the effective date hereof, Working Interest Owners shall deliver to Unit Operator possession of:
 - a. Wells and Well Equipment. All wells located upon the Unit Area, together with the casing, tubing, and downhole equipment up to and including the christmas tree.
 - b. Lease and Operating Equipment. All lease and operating equipment, salt water disposal wells and facility systems related to the unitized formation which Working Interest Owners determine to be necessary or desirable for conducting Unit Operations.
 - c. Records. A copy of all production and well records pertaining to any well which has historically or is currently producing from the Unitized Formation.

2. Inventory and Evaluation of Personal Property. Working Interest Owners shall appoint an inventory committee which shall, as of the Effective Date hereof, or as soon thereafter as feasible, cause to be taken, under the supervision of the Unit Operator and at Unit Expense, joint physical inventories of lease and well equipment within the Unit Area, which inventories shall be used as a basis for determining the controllable items of equipment to be taken over by the Unit Operator hereunder. The Unit Operator shall notify each Working Interest Owner within each separate Tract at least five (5) days prior to the taking of the inventory with respect to said Tract, so that each of said Working Interest Owners may make arrangements to be represented at the taking of the inventory. Such inventories shall exclude all items not of use and value to the Unit and not necessary to Unit Operations. Such inventories shall include and be limited to those items of equipment normally considered controllable as recommended in the material classification manual in Bulletin No. 6 dated May, 1971, or any amendments thereto, published by the Petroleum Accountants Society of North America, except that certain items normally considered noncontrollable, such as sucker rods and other items as agreed upon by the Working Interest Owners may be included in the inventories in order to insure a more equitable adjustment of investments. Immediately following completion, such inventories shall be priced in accordance with the provision of Exhibit "E", Accounting Procedure, attached hereto and made a part hereof; such pricing shall be performed under the supervision of, by the personnel of and in the offices of the Unit Operator, with Working Interest Owners furnishing such additional pricing help as may be available and necessary. It is specifically provided that with respect to each well taken over for Unit Operations, no value shall be assigned to intangible drilling costs of such well or to the down-hole casing therein.

3. Inventory and Valuations. After completion of the inventory and evaluation of property in accordance with the provisions of Article 10.2, Unit Operator shall submit to each Working Interest Owner a copy of the inventory and valuations thereon together with a letter ballot for approval of such inventory and valuations. Within sixty (60) days after receipt of such inventory and valuations each Working Interest Owner shall return such letter ballot to Unit Operator indicating its approval or disapproval thereof. It is agreed that such inventory and valuations shall be binding upon all parties if approved by Working Interest Owners owning as much as sixty-five percent (65%) of the Working Interest in the Unit Area.

4. Investment Adjustment. As soon as practicable after approval by Working Interest Owners of the inventory and valuations as provided in Article 10.3, each Working Interest Owner shall be credited with the value of its interest in all personal property so taken over by Unit Operator under Articles 10.1.a and 10.1.b, and charged with an amount equal to that obtained by multiplying the total value of all such personal property so taken over by Unit Operator under Sections 10.1.a and 10.1.b by such Working Interest Owner's Unit Participation, as shown on Exhibit "C", attached hereto. If the charge against any Working Interest Owner is greater than the amount credited to such Working Interest Owner, the resulting net charge shall be paid and in all other respects be treated as any other item of Unit Expense chargeable against such Working Interest Owner. If the credit to any Working Interest Owner is greater than the amount charged against such Working Interest Owner, the resulting net credit shall be paid to such Working Interest Owner by Unit Operator out of funds received by it in settlement of the net charges described above.

5. General Facilities. The acquisition of warehouses, warehouse stocks, lease houses, camps, facilities systems, and office building necessary for, and directly related to, Unit Operations shall be by negotiation by and between the owners thereof and Unit Operator, subject to the approval of Working Interest Owners.

6. Ownership of Personal Property and Facilities. Each Working Interest Owner, individually, shall, by virtue hereof, own an undivided interest in all personal property and facilities taken over or otherwise acquired by Unit Operator pursuant to this agreement equal to its Unit Participation, shown on Exhibit "C", attached hereto.

ARTICLE 11 WELLS

1. Existing Wells. All wells upon the Unit Area which have been completed for production within the unitized formation are deemed necessary for Unit Operations and shall be delivered to Unit Operator in accordance with Article 10.

2. Undrilled Tracts. Certain tracts of land located within the Unit Area, namely the W/2 NE/4, N/2 SW/4 Sec. 14, and N/2 SE/4 Sec. 23, have not been drilled and contain no wells completed within the unitized formation. These undrilled tracts are considered as necessary for Unit Operations and have been assigned a value as set forth in Section 13, (Tract Participation) of the Unit Agreement.

3. Necessary Wells. In the event it becomes necessary, or advisable, that additional wells be drilled upon the Unit Area, whether for production purposes, disposal purposes or for use as injection wells, the costs thereof shall be a unit expense to be borne by all Working Interest Owners in accordance with Exhibit "C".

ARTICLE 12 DEVELOPMENT AND OPERATING COSTS

1. Basis of Charge to Working Interest Owners. Subject to the provisions of Section 12.2 hereof, Unit Operator initially shall pay all Unit Expense. Each Working Interest Owner shall reimburse Unit Operator for its share of Unit Expenses. All charges, credits, and accounting for Unit Expense shall be in accordance with Exhibit "E" attached hereto. Each Working Interest Owner's share of such charges shall be the same as its Unit Participation.

2. Advance Billings. Unit Operator shall have the right, at its option, to require other Working Interest Owners to advance their respective proportions of estimated development and operating costs and expenses by submitting to such other Working Interest Owners, on or before the 15th day of any month, an itemized estimate of such costs and expenses for the succeeding month with a request for payment in advance. Within fifteen (15) days thereafter, each such other Working Interest Owner shall pay to Unit Operator its proportionate part of such estimate. Adjustment between estimates and the actual costs shall be made by Unit Operator at the close of

each calendar month, and the accounts of the Working Interest Owners shall be adjusted accordingly.

3. Commingling of Funds. Funds received by Unit Operator under this agreement need not be segregated by Unit Operator or maintained by it as a separate fund, but may be commingled with its own funds.

4. Lien and Security Interest of Unit Operator and Working Interest Owners. Each Working Interest Owner grants to Unit Operator a lien upon its Oil and Gas Rights in each Tract, and a security interest in its share of Unitized Substances when extracted and its interest in all Unit Equipment, to secure payment of its share of Unit Expense, together with interest thereon at the rate of 1½% (one and one-half percent) per month. To the extent that Unit Operator has a security interest under the Uniform Commercial Code of the State, Unit Operator shall be entitled to exercise the rights and remedies of a secured party under the Code. The bringing of a suit and the obtaining of judgment by Unit Operator for the secured indebtedness shall not be deemed an election of remedies or otherwise affect the lien rights or security interest as security for the payment thereof. In addition, upon default by any Working Interest Owner in the payment of its share of Unit Expense, Unit Operator shall have the right, without prejudice to other rights or remedies, to collect from the purchaser the proceeds from the sale of such Working Interest Owner's share of Unitized Substances until the amount owed by such Working Interest Owner, plus interest has been paid. Each purchaser shall be entitled to rely upon Unit Operator's written statement concerning the amount of any default. Unit Operator grants a like lien and security interest to the Working Interest Owners.

5. Unpaid Unit Expense. If any Working Interest Owner fails to pay its share of Unit Expense within sixty (60) days after rendition of a statement therefor by Unit Operator, the non-defaulting Working Interest Owners shall, upon request by Unit Operator, pay the unpaid amount as if it were Unit Expense in the proportion that the Unit Participation of each such Working Interest Owner bears to the Unit Participation of all such Working Interest Owners. Each Working Interest Owner so paying its share of the unpaid amount shall, to obtain reimbursement thereof, be subrogated to the security rights described in Section 12.4 of this agreement.

6. Carved-Out Interest. If any Working Interest Owner shall, after executing this agreement, create an overriding royalty, production payment, net proceeds interest, carried interest, or any other interest out of its Working Interest, such carved-out interest shall be subject to the terms and provisions of this agreement, specifically including, but without limitation, Section 12.4 hereof entitled "Lien and Security Interest of Unit Operator and Working Interest Owners." If the Working Interest Owner creating such carved-out interest (a) fails to pay any Unit Expense chargeable to such Working Interest Owner under this agreement, and the production of Unitized Substances accruing to the credit of such Working Interest Owner is insufficient for that purpose, or (b) withdraws from this agreement under the terms and provisions of Article 17 hereof, the carved-out interest shall be chargeable with a pro rata portion of all Unit Expense incurred hereunder, the same as though carved-out interest were a Working Interest, and Unit Operator shall have the right to enforce against such carved-out interest the lien and all other rights granted in Section 12.4 for the purpose of collecting the Unit Expense chargeable to the carved-out interest.

7. Rentals. The Working Interest Owners in each Tract shall pay all rentals, minimum royalty, advance rentals or delay rentals due under the lease thereon and shall concurrently submit to the Unit Operator evidence of payment.

8. Budgets. Before or as soon as practical after the Effective Date, Unit Operator shall prepare a budget of estimated Unit Expense for the remainder of the calendar year, and, on or before the first day of each August thereafter, shall prepare a budget for the ensuing calendar year. A budget shall set forth the estimated Unit Expense by quarterly periods. Budgets shall be estimates only, and shall be adjusted or corrected by Working Interest Owners and Unit Operator whenever an adjustment or correction is proper. A copy of each budget and adjusted budget shall be furnished promptly to each Working Interest Owner.

ARTICLE 13
NON-UNITIZED FORMATIONS

1. Right to Operate. Any Working Interest Owner that now has or hereafter acquires the right to drill for and produce oil, gas or other minerals from a formation underlying the Unit Area other than the Unitized Formation, shall have the right to do so notwithstanding this Agreement or the Unit Agreement. In exercising the right, however, the Working Interest Owner shall exercise care to prevent unreasonable interference with Unit Operations. No Working Interest Owner other than Unit Operator shall produce Unitized Substances through any well drilled or operated by it. If any Working Interest Owner drills any well into or through the Unitized Formation, the Unitized Formation shall be protected in a manner satisfactory to other Unit Working Interest Owners so that production of Unitized Substances will not be adversely affected.

2. Multiple Completions. No well now or hereafter completed in the Unitized Formation shall ever be completed as a multiple completion with the Unitized Formation unless such multiple completion and subsequent handling of the multiple completion is approved by Working Interest Owners in accordance with the voting procedure described in Article 4.3 of this Agreement.

ARTICLE 14
TITLES

1. Warranty and Indemnity. Each Working Interest Owner represents and warrants that it is the owner of the respective Working Interest as shown to be owned by it on appropriate Exhibits to this Agreement and that such interest is not subject to any liens, mortgages or other encumbrances, hereby indemnifies and holds the other Working Interest Owners harmless from any loss due to the failure, in whole or in part, of its title to any such interest, except failure of title arising out of operations hereunder; provided, however, that such indemnity and any liability for breach of warranty shall be limited to an amount equal to the net value that had been received from the sale of Unitized Substances attributed hereunder to the interest as to which title failed. Each failure of title will be effective, insofar as this Agreement is concerned, as of the first day of the calendar month in which such failure is finally determined and there shall be no retroactive adjustment of Unit Expense or retroactive allocation of Unitized Substances or the proceeds therefrom as a result of title failure.

2. Failure of Title Because of Unit Operations. The failure of title to any Working Interest in any Tract because of Unit Operations, including nonproduction from such Tract, shall not change the Unit Participation of the Working Interest Owner whose title failed in relation to the Unit Participations of the other Working Interest Owners at the time of the title failure.

ARTICLE 15
LIABILITY, CLAIMS AND SUITS

1. Individual Liability. The duties, obligations, and liabilities of Working Interest Owners shall be several and not joint or collective; and nothing contained herein shall ever be construed as creating a partnership of any kind, joint venture or an association or trust between or among Working Interest Owners.

2. Settlements. Unit Operator may settle any single damage claim or suit involving Unit Operations if the expenditure does not exceed _____
Ten thousand (\$10,000.00) Dollars

and if the payment is in complete settlement of such claim or suit. If the amount required for settlement exceeds the above amount, Working Interest Owners shall determine the further handling of the claim or suit, unless such authority is delegated to Unit Operator. All costs and expense of handling, settling, or otherwise discharging such claim or suit shall be an item of Unit Expense, subject to such limitation as is set forth in Exhibit "E". If a claim is made against any Working Interest Owner or if any Working Interest Owner is sued on account of any matter arising from Unit Operations over which such Working Interest Owner individually has no control because of the rights given Working Interest Owners and Unit Operator

by this Agreement and the Unit Agreement, the Working Interest Owner shall immediately notify Unit Operator, and the claim or suit shall be treated as any other claim or suit involving Unit Operations.

ARTICLE 16

Notices. All notices required hereunder shall be in writing and shall be deemed to have been properly served when sent by mail or telegram to the address of the representative of each Working Interest Owner as furnished to Unit Operator in accordance with Article 4 hereof.

ARTICLE 17 WITHDRAWAL OF WORKING INTEREST OWNER

1. Withdrawal. A Working Interest Owner may withdraw from this Agreement by transferring, without warranty of title either express or implied, to the Working Interest Owners who do not desire to withdraw all its Oil and Gas Rights, exclusive of Royalty Interests, together with its interest in all Unit Equipment and in all wells used in Unit Operations, provided that such transfer shall not relieve such Working Interest Owner from any obligation or liability incurred prior to the first day of the month following receipt by Unit Operator of such transfer. The delivery of the transfer shall be made to Unit Operator for the transferees. The transferred interest shall be owned by the transferees in proportion to their respective Unit Participations. The transferees, in proportion to the respective interests so acquired, shall pay the transferor for its interest in Unit Equipment, the salvage value thereof less its share of the estimated cost of salvaging same and of plugging and abandoning all wells then being used or held for Unit Operations, as determined by Working Interest Owners. In the event such withdrawing owner's interest in the aforesaid salvage value is less than such owner's share of such estimated costs, the withdrawing owner, as a condition precedent to withdrawal, shall pay the Unit Operator, for the benefit of Working Interest Owners succeeding to its interest, a sum equal to the deficiency. Within sixty (60) days after receiving delivery of the transfer, Unit Operator shall render a final statement to the withdrawing owner for its share of Unit Expense, including any deficiency in salvage value, as determined by Working Interest Owners, incurred as of the first day of the month following the date of receipt of the transfer. Provided all Unit Expense, including any deficiency hereunder, due from the withdrawing owner has been paid in full within thirty (30) days after the rendering of such final statement by the Unit Operator, the transfer shall be effective the first day of the month following its receipt by Unit Operator and, as of such effective date, withdrawing owner shall be relieved from all further obligations and liabilities hereunder and under the Unit Agreement, and the rights of the withdrawing Working Interest Owner hereunder and under the Unit Agreement shall cease insofar as they existed by virtue of the interest transferred.

2. Limitation on Withdrawal. Notwithstanding anything set forth in Article 17.1, Working Interest Owners may refuse to permit the withdrawal of a Working Interest Owner if its Working Interest is burdened by any royalties, overriding royalties, production payments, net proceeds interest, carried interest, or any other interest created out of the Working Interest in excess of one-eighth (1/8th) lessor's royalty, unless the other Working Interest Owners willing to accept the assignment agree to accept the Working Interest subject to such burdens.

ARTICLE 18 ABANDONMENT OF WELLS

1. Rights of Former Owners. If Working Interest Owners decide to permanently abandon any well completed in the Unitized Formation within the Unit Area prior to termination of the Unit Agreement, Unit Operator shall give written notice of such fact to the Working Interest Owners of the Tract on which such well is located and said Working Interest Owners shall have the right and option for a period of sixty (60) days after receipt of such notice to notify Unit Operator of their election to take over and own said well and to deepen or plug back said well to a formation other than the Unitized Formation. Within sixty (60) days after said Working Interest

Owners have so notified Unit Operator of their desire to take over such well, they shall pay the Unit Operator, for credit to the joint account of the Working Interest Owners, the amount as estimated and fixed by Working Interest Owners to be the net salvage value of the equipment in and on said well, except casing and other equipment originally contributed at no cost. The Working Interest Owners of the Tract, by taking over the well, agree to seal off the Unitized Formation in a manner satisfactory to Working Interest Owners, and upon abandonment to plug the well in compliance with all applicable laws and regulations.

2. Plugging. In the event the Working Interest Owners of a Tract do not elect to take over a well located thereon which is proposed for abandonment, Unit Operator shall plug and abandon the well in accordance with applicable laws, and regulations.

ARTICLE 19 EFFECTIVE DATE AND TERM

1. Effective Date. This Agreement shall become effective on the date and at the time the Unit Agreement becomes effective.

2. Term. This agreement shall continue in full force and effect so long as the Unit Agreement remains in force and effect and thereafter until (a) all Unit Wells have been abandoned and plugged or turned over to Working Interest Owners in accordance with article 20 hereof, (b) all personal and real property acquired for the Joint Account of Working Interest Owners have been disposed of by Unit Operator in accordance with instructions of Working Interest Owners, and (c) there has been a final accounting.

ARTICLE 20 ABANDONMENT OF OPERATIONS

1. Termination. Upon termination of the Unit Agreement, the following will occur:

- a. Oil and Gas Rights. Oil and Gas Rights in and to each separate shall no longer be affected by this Agreement, and thereafter the parties shall be governed by the terms and provisions of the leases, contracts, and other instruments affecting the separate Tracts.
- b. Right to Operate. Working Interest Owners of any Tract desiring to take over and continue to operate a well or wells located thereon may do so by paying Unit Operator, for the credit of the joint account, the net salvage value, as determined by the Working Interest Owners, of the equipment in and on the well, except casing and other equipment originally contributed at no cost, and by agreeing to properly plug the well at such time as it is abandoned.
- c. Salvaging Wells. Unit Operator shall salvage as much of the casing and equipment in or on wells not taken over by Working Interest Owners of separate Tracts as can economically and reasonably be salvaged, and shall cause the wells to be plugged and abandoned in compliance with applicable laws and regulations.
- d. Cost of Abandonment. The cost of abandonment of Unit Operations shall be Unit Expense.
- e. Distribution of Assets. Working Interest Owners shall share in the distribution of Unit Equipment, or the proceeds thereof in proportion to their Unit Participations.

ARTICLE 21 LAWS, REGULATIONS AND CERTIFICATE OF COMPLIANCE

1. Laws and Regulations. This Agreement and operations hereunder are subject to all valid laws and valid rules, regulations and orders of all regulatory bodies having jurisdiction and to all other applicable federal, state, and local laws, ordinances, rules, regulations and orders; and any provision of this Agreement found to be contrary to or inconsistent with any such law, ordinance, rule, regulation or order shall be deemed modified accordingly.

2. Certificate of Compliance. In the performance of work under this Agreement, the parties agree to comply and Unit Operator shall require each independent contractor to comply with the provisions of Exhibit "F".

ARTICLE 22
EXCISE TAX PROVISIONS

1. Crude Oil Excise Tax. For the period during which excise taxes are payable under the Crude Oil Windfall Profit Tax Act of 1980 on any party's Unitized Substances, the first crude oil allocated to any Tract after distribution of any incremental tertiary crude as hereinafter provided shall be the tax tier type of crude oil actually produced or considered to have been produced from such Tract during the base period under I.R.C. regulations but not to exceed its Tract Participation share or the amount of such tax tier type of crude oil currently available. Any excess of a tax tier type of crude oil existing after the foregoing specific identification allocation shall be allocated to the remaining Tracts in the Unit which have an under-allocation of crude oil in proportion to the amount of their relative under-allocations of crude oil. Anything hereinabove notwithstanding, any incremental tertiary oil as defined under I.R.C. Section 4993 shall be allocated to each Tract in accordance with its Tract Participation prior to any other allocation of tax tier type of crude oil under this Article 22.1 In no case shall the sum of the different tax tier types of crude oil allocated to any Tract exceed the total amount of crude oil allocable under its Tract Participation.

2. Amendment by Working Interest Owners. This Article 22 may be amended or deleted by vote of the Working Interest Owners using the voting procedure set out in Article 4.3 of this Operating Agreement if in the opinion of the Working Interest Owners (a) application of Article 22 as written becomes unworkable or inequitable as a result of changes in laws or regulations of any governmental agency, or (b) amendment or deletion of this Article 22 is necessary to comply with applicable laws, rules, regulations or orders of any governmental agency having jurisdiction.

ARTICLE 23

Governmental Regulations. Working Interest Owners agree to release Unit Operator from any and all losses, damages, injuries, claims and causes of action arising out of, incident to or resulting directly or indirectly from Unit Operator's interpretation or application of rules, rulings, regulations or orders of any governmental agency or predecessor agencies to the extent Unit Operator's interpretation or application of such rules, rulings, regulations or orders were made in good faith. Working Interest Owners further agree to reimburse Unit Operator for their proportionate share of any amounts Unit Operator may be required to refund, rebate or pay as a result of an incorrect interpretation or application of the above noted rules, rulings, regulations or orders, together with their proportionate part of interest and penalties owing by Unit Operator as a result of such incorrect interpretation or application of such rules, rulings, regulations or orders.

ARTICLE 24

Counterpart Execution. This Agreement may be executed in any number of counterparts, no one of which needs to be executed by all parties and may be ratified or consented to by separate instrument in writing specifically referring hereto, and shall be binding upon all those parties who have executed such a counterpart, ratification or consent hereto with the same force and effect as if all parties had signed the same document, and regardless or whether or not it is executed by all other parties owning or claiming an interest in the land within the above described Unit Area. Furthermore, this Agreement shall extend to and be binding on the parties hereto, their successors, heirs and assigns.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement upon the respective dates indicated opposite their respective signatures.

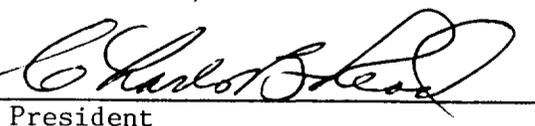
Attest:

Read & Stevens, Inc.

By



By


President

STATE OF NEW MEXICO)
)
COUNTY OF CHAVES)

The foregoing instrument was acknowledged before me this 9th day of
December, 1988, by Charles B. Read
who is President of Read & Stevens, Inc., a New Mexico
Corporation, on behalf of said corporation.

My commission expires: 8-11-90 Sandall R. Felt
Notary Public

EXHIBIT "A" - Land Plat,
EXHIBIT "B" - Schedule of Lands and Leases,

are attached to the Unit Agreement but are
made a part hereof.

EXHIBIT "C" PART I

SCHEDULE SHOWING PERCENTAGE (In Decimals) OF ALL OWNERS WITHIN EACH TRACT
AND
INTEREST IN UNIT AREA ATTRIBUTABLE TO EACH TRACT

**BUNKER HILL SECONDARY RECOVERY UNIT
EDDY COUNTY, NEW MEXICO**

Tract No. and Tract Participation in Unit (decimal)	Owner	Interest (Ownership) Within Tract		Interest (Ownership) Within Unit Area Attributable to Tract	
		Expense	Production	Expense	Production
Tract No. 1 .08177	Olen F. Featherstone II	.0500	.0375	.0040885	.00306637
	Charles W. Hicks	.1000	.0750	.0081770	.00613274
	H & S Oil Company	.2500	.1875	.0204425	.01533187
	Leland Wittkopp	.1000	.0750	.0081770	.00613274
	A. Nelson Muncy	.0500	.0375	.0040885	.00306638
	Martin B. Muncy	.0500	.0375	.0040885	.00306638
	T.C. Stromberg	.0500	.0375	.0040885	.00306638
	C.E. LaRue & B.N. Muncy, Jr.	.3500	.2625	.0286195	.02146463
	Featherstone Dev. Corp.	-0-	.0625	-0-	.00511063
	Olen F. Featherstone II United States	-0-	.0625	-0-	.00511063
		-0-	.1250	-0-	.01022125
		<u>1.0000</u>	<u>1.0000</u>	<u>.0817700</u>	<u>.08177000</u>

Tract No. 2
 .01732

H & S Oil Company	.2500	.17500	.00433000	.00303100
Leland Wittkopp	.1000	.07000	.00173200	.00121240
A. Nelson Muncy	.0500	.03500	.00086600	.00060620
Martin B. Muncy	.0500	.03500	.00086600	.00060620
T.C. Stromberg	.0500	.03500	.00086600	.00060620
C.E. LaRue &				
B.N. Muncy, Jr.	.3500	.24500	.00606200	.00424340
Olen F. Featherstone II	.0500	.03500	.00086600	.00060620
Charles W. Hicks	.1000	.07000	.00173200	.00121240
F.C. Jones	-0-	.07500	-0-	.00129900
A.W. Rutter, Jr.	-0-	.01875	-0-	.00032475
A.W. Rutter	-0-	.01875	-0-	.00032475
G.L. Wilbanks	-0-	.01250	-0-	.00021650
Harold E. Jones	-0-	.05000	-0-	.00086600
United States	-0-	.12500	-0-	.00216500
	<u>1.0000</u>	<u>1.00000</u>	<u>.01732000</u>	<u>.01732000</u>

Tract No. 3
 .22565

William E. Read	.0625	.046875	.01410312	.01057734
Raymond R. Trollinger, Jr.	.0500	.037500	.01128250	.00846187
FISCO, INC.	.0250	.018750	.00564125	.00423093
Charles B. Read	.0500	.037500	.01128250	.00846187
Norman L. Stevens, Jr.	.0650	.048750	.01466725	.01100044
Est. John H. Miller, Jr.	.0275	.020625	.00620537	.00465403
W.W. Shipley, IV	.1250	.093750	.02820625	.02115469
Norman L. Stevens, III	.0100	.007500	.00225650	.00169238
Earle C. May	.0200	.015000	.00451300	.00338475
Lawrence & Julie Rennett	.0200	.015000	.00451300	.00338475
Richard F. Deich	.0100	.007500	.00225650	.00169238
Elliot-Hall Company	.0500	.037500	.01128250	.00846188
Charles B. Read Trust "A"	.0500	.037500	.01128250	.00846188
T.T. Sanders, Jr.	.0500	.037500	.01128250	.00846188
Harriet C. Miller	.0275	.020625	.00620538	.00465403
NGC Energy Company	.2950	.221250	.06656675	.04992506
Marion T. Turner	.0625	.046875	.01410313	.01057734
Chevron USA, Inc.	-0-	.125000	-0-	.02820625
State of New Mexico	-0-	.125000	-0-	.02820625
	<u>1.0000</u>	<u>1.000000</u>	<u>.22565000</u>	<u>.22565000</u>

Tract No. 4
 .11723

William E. Read	.0164620	.01234650	.00192984	.00144738
Joe Wigley	.0100000	.00750000	.00117230	.00087923
Lantana Oil Company	.0200000	.01500000	.00234460	.00175845
FISCO, Inc.	.0775000	.05797500	.00908533	.00679641
Charles B. Read	.1000000*	.07500000*	.01367683****	.01025763****
Norman L. Stevens, Jr.	.0900000**	.06750000**	.01250454****	.00937840****
First Century Oil Inc.	.0275000	.02047500	.00322383	.00240028
D.H.B. Partnership	.0069270	.00519525	.00081205	.00060903
Betty R. Young	.0100000	.00750000	.00117230	.00087922
James B. Read	.0100000	.00750000	.00117230	.00087922
Norman L. Stevens, III	.0200000	.01500000	.00234460	.00175844
Barbara J. Stevens	.0100000	.00750000	.00117230	.00087922
Bruce A. Stubbs	.0300000	.02250000	.00351690	.00263767
Read & Stevens, Inc.	.0200000	.01500000	.00234460	.00175845
Carolyn Beall	.0100000	.00750000	.00117230	.00087923
F.I.C., Inc.	.0566660	.04136618	.00664296	.00484936
Trustee, Henry Jaffe	.0100000	.00750000	.00117230	.00087923
Michael Jaffe	.0100000	.00750000	.00117230	.00087923
Charles R. Meeker, III	.0050000	.00375000	.00058615	.00043961
Charles R. Meeker, III, Trust	.0050000	.00375000	.00058615	.00043961
Lawrence J. Sheehan	.0100000	.00750000	.00117230	.00087923
Vernon L. Burkhead	.0050000	.00375000	.00058615	.00043961
Henry L. Taylor	.0300000	.02190000	.00351690	.00256734
Frank McGinnis	.0050000	.00375000	.00058615	.00043961
John L. Hauer	.0100000	.00750000	.00117230	.00087923
James R. Keay	.0100000	.00750000	.00117230	.00087923
Gloria McE. Read	.0100000	.00750000	.00117230	.00087923
David M. Stevens	.0050000	.00375000	.00058615	.00043961
Patricia S. Bell	.0050000	.00375000	.00058615	.00043961
Michael Norton, III	.0100000	.00750000	.00117230	.00087923
Est. James F. Elliott	.0050000	.00365000	.00058615	.00042789
NGC Energy Company	.2899450	.21745875	.03399024	.02549269
Marion T. Turner	.0100000	.00750000	.00117230	.00087923
Charles B. Read	.0166666*	.01250000*	-0-	-0-
Norman L. Stevens, Jr.	.0166667**	.01250000**	-0-	-0-

Tract No. 4, Continued from previous page.

.11723				
	Nadine Loveless Smith	.0083333	.00625000	.00097691
	Carolyn L. Schlicher	.0041667	.00312500	.00048846
	Lucinda Loveless	.0041667	.00312500	.00048846
	Texaco Production, Inc.	-0-	.12500000	-0-
	Samuel Smith	-0-	.00213332	-0-
	State of New Mexico	-0-	.12500000	-0-
		<u>1.00000000</u>	<u>1.00000000</u>	<u>.11723000</u>
				<u>.11723000</u>

* Read Total	<u>Cost</u>	<u>Production</u>
	.1166666	.0875000
** Stevens Total	.1066667	.0800000

*** Above totals used in calculations
in the last 2 columns.

Tract No. 5
 .02162

William E. Reed	.06250	.0507813	.00135125	.00109789
Warren B. Patterson	.01000	.0081250	.00021620	.00017567
John Turner	.03125	.0253906	.00067562	.00054895
Fisco, Inc.	.02500	.0203125	.00054050	.00043917
Charles B. Read	.10000	.0812500	.00216200	.00175663
Norman L. Stevens, Jr.	.06250	.0507813	.00135124	.00109789
First Century Oil Inc.	.08750	.0710936	.00189174	.00153704
Est. John H. Miller, II	.04000	.0325000	.00086480	.00070265
W.W. Shipley, IV	.12500	.1015626	.00270250	.00219578
Bruce A. Stubbs	.01000	.0081250	.00021620	.00017566
Read & Stevens, Inc.	.01500	.0121875	.00032430	.00026349
Yankee Ventures/82	.01000	.0081250	.00021620	.00017566
J.E. Simmons Trust "A"	.03125	.0253906	.00067563	.00054894
Beulah Simmons Trust "A"	.03125	.0253906	.00067563	.00054894
J.E. Simmons Trust "B"	.03125	.0253906	.00067563	.00054895
Beulah Simmons Trust "B"	.03125	.0253907	.00067563	.00054895
Arnold Ballard	.01000	.0081250	.00021620	.00017566
Haskell H. Bass, Jr.	.01000	.0081250	.00021620	.00017566
Pauline M. Lepley	.01000	.0081250	.00021620	.00017566
Westway Petro J/V	.25125	.2041406	.00543203	.00441352
Stevens & Co., Inc.	.01500	.0121875	.00032430	.00026349
Mobil Prod. Tex. & NM	-0-	.0625000	-0-	.00135125
State of New Mexico	-0-	.1250000	-0-	.00270250
	<u>1.00000</u>	<u>1.0000000</u>	<u>.02162000</u>	<u>.02162000</u>

Tract No. 6
 .05697

William E. Read	.06250	.04882812	.00356063	.00278174
Warren B. Patterson	.12500	.09765625	.00712125	.00556348
John W. Turner	.06250	.04882812	.00356063	.00278174
Gerald H. Wright	.12500	.09765625	.00712125	.00556348
Charles B. Read	.18750	.14648440	.01068188	.00834522
J.E. Simmons Trust "A"	.03125	.02441406	.00178031	.00139087
Beulah Simmons Trust "A"	.03125	.02441406	.00178031	.00139087
J.E. Simmons Trust "B"	.03125	.02441406	.00178031	.00139087
Beulah Simmons Trust "B"	.03125	.02441407	.00178031	.00139087
Est. John H. Miller, II	.12500	.09765625	.00712124	.00556347
W.W. Shipley, IV	.12500	.09765624	.00712125	.00556348
Stevens & Co., Inc.	.06250	.04882812	.00356063	.00278173
Union Tex. Explorationm	-0-	.03125000	-0-	.00178031
Enron Oil & Gas	-0-	.03125000	-0-	.00178031
William J. LeMay	-0-	.03125000	-0-	.00178031
State of New Mexico	-0-	.12500000	-0-	.00712125
	<u>1.000000</u>	<u>1.00000000</u>	<u>.05697000</u>	<u>.05697000</u>

Tract No. 7
 .04812

William E. Read	.06250	.0488281	.00300750	.00234960
Warren B. Patterson	.01000	.0078125	.00048120	.00037593
FISCO, Inc.	.02500	.0195313	.00120300	.00093985
Charles B. Read	.10000	.0781250	.00481200	.00375938
Norman L. Stevens, Jr.	.06250	.0488281	.00300750	.00234960
First Century Oil Inc.	.08750	.0683594	.00421050	.00328944
W.W. Shipley, IV	.12500	.0976562	.00601500	.00469922
Bruce A. Strubbs	.01000	.0078125	.00048120	.00037594
David S. Harle	.00500	.0039063	.00024060	.00018797
Read & Stevens, Inc.	.01500	.0117188	.00072180	.00056391
Yankee Ventures/82	.01000	.0078125	.00048120	.00037594
J.E. Simmons Trust "A"	.03125	.0244141	.00150375	.00117481
Beulah L. Simmons Trust "A"	.03125	.0244140	.00150375	.00117480
J.F. Simmons Trust "B"	.03125	.0244140	.00150375	.00117480
Beulah L. Simmons Trust "B"	.03125	.0244141	.00150375	.00117481
Arnold Ballard	.01000	.0078125	.00048120	.00037594
Haskell A. Bass, Jr.	.01000	.0078125	.00048120	.00037594
Pauline M. Lepley	.01000	.0078125	.00048120	.00037594
NGC Energy Co.	.29125	.2275390	.01401495	.01094918
Marion T. Turner	.03125	.0244141	.00150375	.00117481
Stevens & Co. Inc.	.01000	.0078125	.00048120	.00037594
Union Tex. Exploration	-0-	.0312500	-0-	.00150375
Enron Oil & Gas	-0-	.0312500	-0-	.00150375
William J. LeMay	-0-	.0312500	-0-	.00150375
State of New Mexico	-0-	.1250000	-0-	.00601500

1.00000 1.0000000 .04812000 .04812000

Tract No. 8
 .01671

William E. Read	.06250	.0468750	.00104437	.00078327
Warren B. Patterson	.01000	.0075000	.00016710	.00012532
FISCO, Inc.	.02500	.0187500	.00041774	.00031330
Charles B. Read	.10000	.0750000	.00167100	.00125325
Norman L. Stevens, Jr.	.06250	.0468750	.00104437	.00078328
First Century Oil Inc.	.08750	.0656250	.00146213	.00109659
W.W. Shipley, IV	.12500	.0937500	.00208875	.00156656
Bruce A. Stubbs	.01000	.0075000	.00016710	.00012533
David S. Harle	.00500	.0037500	.00008355	.00006266
Read & Stevens, Inc.	.01500	.0112500	.00025065	.00018799
Yankee Ventures/82	.01000	.0075000	.00016710	.00012533
J.E. Simmons Trust "A"	.03125	.0234375	.00052219	.00039164
Beulah Simmons Trust "A"	.03125	.0234375	.00052219	.00039164
J.E. Simmons Trust "B"	.03125	.0234375	.00052219	.00039164
Beulah Simmons Trust "B"	.03125	.0234375	.00052219	.00039164
Arnold Ballard	.01000	.0075000	.00016710	.00012533
Haskell H. Bass	.01000	.0075000	.00016710	.00012533
Pauline M. Lepley	.01000	.0075000	.00016710	.00012533
Westway Petro J/V	.29125	.2184375	.00486679	.00365009
Marion T. Turner	.03125	.0234375	.00052219	.00039164
Stevens & Co., Inc.	.01000	.0075000	.00016710	.00012533
Union Tex. Exploration	-0-	.0625000	-0-	.00104438
Enron Oil & Gas	-0-	.0625000	-0-	.00104438
State of New Mexico	-0-	.1250000	-0-	.00208875
	<u>1.00000</u>	<u>1.0000000</u>	<u>.01671000</u>	<u>.01671000</u>

Tract No. 9

.06612

William E. Read	.0250	.0187500	.00165300	.00123975
Joe Wigley	.0100	.0075000	.00066120	.00049590
Raymond R. Trollinger, Jr.	.0500	.0375000	.00330600	.00247950
George H. Hunker	.0250	.0187500	.00165300	.00123974
Charles B. Read	.0375	.0281250	.00247950	.00185963
Norman L. Stevens, Jr.	.0375	.0281250	.00247950	.00185963
Frederick W. Veninga	.0500	.0375000	.00330600	.00247950
U.S. Marshall	.0200	.0150000	.00132240	.00099180
W.W. Shipley, IV	.0500	.0375000	.00330600	.00247950
Hugh Boyle	.0500	.0375000	.00330600	.00247950
L. Sterling Hanel	.0300	.0225000	.00198360	.00148770
Richard F. Deich	.0300	.0225000	.00198360	.00148770
Elliott-Hall Comapny	.0500	.0375000	.00330600	.00247950
Robert Smith	.0100	.0075000	.00066120	.00049590
Bruce A. Stubbs	.0100	.0075000	.00066120	.00049590
Bert & Sherry Blackard	.0500	.0375000	.00330600	.00247950
David S. Harle	.0100	.0075000	.00066120	.00049590
Earl E. Schatz	.0200	.0150000	.00132240	.00099180
B.F. Houston	.0250	.0187500	.00165300	.00123975
Read & Stevens, Inc.	.0100	.0075000	.00066120	.00049590
John McIntire	.0200	.0150000	.00132240	.00099180
W.P.A., Inc. (FDIC)	.0500	.0375000	.00330600	.00247950
Chaparral Partners	.0500	.0375000	.00330600	.00247950
Yankee Ventures/82	.0100	.0075000	.00066120	.00049590
Snow Oil & Gas, Inc.	.0100	.0075000	.00066120	.00049590
Stanley Reed	.0200	.0150000	.00132240	.00099180
Morco Geological	.0200	.0150000	.00132240	.00099180
Pauline M. Lepley	.0100	.0075000	.00066120	.00049590
Westway Petroleum	.2000	.1500000	.01322400	.00991800
Marion T. Turner	.0100	.0075000	.00066120	.00049590
Union Tex. Exploration	-0-	.0625000	-0-	.00413250
Enron Oil & Gas	-0-	.0625000	-0-	.00413250
State of New Mexico	-0-	.1250000	-0-	.00826500
	<u>1.0000</u>	<u>1.0000000</u>	<u>.06612000</u>	<u>.06612000</u>

Tract No. 10
.03480

William E. Read	.06250	.0512695	.00217500	.00178417
Warren B. Patterson	.01000	.0082031	.00034800	.00028546
Fisco, Inc.	.02500	.0205078	.00087000	.00071367
Charles B. Read	.10000	.0820313	.00348000	.00285469
Norman L. Stevens, Jr.	.06250	.0512695	.00217500	.00178418
First Century Oil, Inc.	.08750	.0717773	.00304500	.00249785
W.W. Shipley, IV	.12500	.1025390	.00435000	.00356836
Bruce A. Stubbs	.01000	.0082032	.00034800	.00028547
Read & Stevens, Inc.	.01500	.0123047	.00052200	.00042820
Yankee Ventures/82	.01000	.0082031	.00034800	.00028547
J.E. Simmons Trust "A"	.03125	.0256347	.00108750	.00089209
Beulah Simmons Trust "A"	.03125	.0256348	.00108750	.00089209
J.E. Simmons Trust "B"	.03125	.0256348	.00108750	.00089209
Beulah Simmons Trust "B"	.03125	.0256348	.00108750	.00089209
Arnold Ballard	.01000	.0082031	.00034800	.00028547
Haskell Bass	.01000	.0082031	.00034800	.00028547
Pauline M. Lepley	.01000	.0082031	.00034800	.00028547
NGC Energy Co.	.29125	.2389160	.01013550	.00831428
Marion T. Turner	.03125	.0256348	.00108750	.00089209
Stevens & Co., Inc.	.01500	.0123048	.00052200	.00042821
Amoco Production Co.	-0-	.0546875	-0-	.00190313
State of New Mexico	-0-	.1250000	-0-	.00435000
	<u>1.00000</u>	<u>1.0000000</u>	<u>.03480000</u>	<u>.03480000</u>

Tract No. 11
.03683

William E. Read	.016462	.0123465	.00060630	.00045472
Joe Wigley	.010000	.0075000	.00036830	.00027623
Lantana Oil Co.	.020000	.0150000	.00073660	.00055245
Fisco, Inc.	.077500	.0579750	.00285433	.00213522
Charles B. Read	.100000*	.0750000*	.00429681***	.00322263***
Norman L. Stevens, Jr.	.090000**	.0675000**	.00392855***	.00294640***
First Century Oil Inc.	.027500	.0204750	.00101283	.00075408
D.H.B. Partnership	.006927	.0051952	.00025512	.00019134
Betty R. Young	.010000	.0075000	.00036830	.00027623
James B. Read	.010000	.0075000	.00036830	.00027623
Norman L. Stevens, III	.020000	.0150000	.00073660	.00055245
Barbara J. Stevens	.010000	.0075000	.00036830	.00027623
Bruce A. Stubbs	.030000	.0225000	.00110490	.00082868
Read & Stevens, Inc.	.020000	.0150000	.00073660	.00055245
Carolyn Beall	.010000	.0075000	.00036830	.00027623
F.I.C., Inc.	.056666	.0413662	.00208701	.00152352
Henry Jaffe, Trustee	.010000	.0075000	.00036830	.00027623
Michael Jaffe	.010000	.0075000	.00036830	.00027623
Charles R. Meeker, III	.005000	.0037500	.00018415	.00013810
Charles R. Meeker, III, Trust	.005000	.0037500	.00018415	.00013810
Lawrence J. Sheehan	.010000	.0075000	.00036830	.00027623
Vernon L. Burkhead	.005000	.0037500	.00018415	.00013810
Henry L. Taylor	.030000	.0219000	.00110490	.00080658
Frank McGinnis	.005000	.0037500	.00018415	.00013810
John L. Hauer	.010000	.0075000	.00036830	.00027623
James W. Keay	.010000	.0075000	.00036830	.00027623
Gloria McE. Read	.010000	.0075000	.00036830	.00027623
David M. Stevens	.005000	.0037500	.00018415	.00013810
Patricia Stevens Bell	.005000	.0037500	.00018415	.00013811
Michael Norton, III	.010000	.0075000	.00036830	.00027623
Est. James F. Elliott	.005000	.0036500	.00018415	.00013443
NGC Energy Co.	.289945	.2174588	.01067867	.00800901
Marion T. Turner	.010000	.0075000	.00036830	.00027623
Charles B. Read	.0166666*	.0125000*	-0-	-0-
Norman L. Stevens, Jr.	.0166667**	.0125000**	-0-	-0-
Nadine Loveless Smith	.0083333	.0062500	.00030691	.00023019

Tract No. 11, Continued from previous page.

.03683	Carolyn L. Schlicher	.0041667	.0031250	.00015346	.00011509
	Lucinda Loveless	.0041667	.0031250	.00015346	.00011509
	Amoco Production Co.	-0-	.1250000	-0-	.00460375
	Sammuel Smith	-0-	.0021333	-0-	.00007857
	State of New Mexico	-0-	.1250000	-0-	.00460375
		<u>1.0000000</u>	<u>1.0000000</u>	<u>.03683000</u>	<u>.03683000</u>

* Read Total	<u>Cost</u>	<u>Production</u>
	.1166666	.0875000
** Stevens Total	.1066667	.0800000

*** Above totals used in calculations
in the last 2 columns.

Continued Next Page

Tract No. 12

.01565

William E. Read	.06250	.0468750	.00097812	.00073358
Joe Wigley	.01000	.0075000	.00015650	.00011738
Raymond R. Trollinger, Jr.	.05000	.0375000	.00078250	.00058688
Fisco, Inc.	.02500	.0187500	.00039124	.00029343
Charles B. Read	.05000	.0375000	.00078250	.00058687
Norman L. Stevens, Jr.	.06500	.0487500	.00101725	.00076293
First Century Oil, Inc.	.05000	.0375000	.00078250	.00058688
Est. John H. Miller, II	.02750	.0206250	.00043038	.00032278
W.W. Shipley, IV	.06250	.0468750	.00097813	.00073359
Norman L. Stevens, III	.01000	.0075000	.00015650	.00011738
Earle May	.02000	.0150000	.00031300	.00023475
Lawrence & Julie Rennett	.02000	.0150000	.00031300	.00023475
Richard F. Deich	.01000	.0075000	.00015650	.00011738
Elliott Hall Co.	.05000	.0375000	.00078250	.00058688
T.T. Sanders, Jr.	.05000	.0375000	.00078250	.00058688
Bruce A. Stubbs	.01000	.0075000	.00015650	.00011738
W.W. Shipley, V	.03125	.0234375	.00048906	.00036680
Bert & Sherry Blackard	.03125	.0234375	.00048906	.00036680
NGC Energy Company	.30250	.2268750	.00473413	.00355059
Marion T. Turner	.06250	.0468750	.00097813	.00073359
Amoco Production Co.	-0-	.08333333	-0-	.00130417
Midwest Inv. Co.	-0-	.0416667	-0-	.00065208
Bogle Farms, Inc.	-0-	.02083333	-0-	.00032604
Dartmouth College	-0-	.02083333	-0-	.00032604
State of New Mexico	-0-	.08333334	-0-	.00130417
	<u>1.00000</u>	<u>1.0000000</u>	<u>.01565000</u>	<u>.01565000</u>

Tract No. 13

.26121

William E. Read	.06250	.0468750	.01632562	.01224421
Joe Wigley	.01000	.0075000	.00261210	.00195907
Raymond R. Trollinger, Jr.	.05000	.0375000	.01306050	.00979537
Fisco, Inc.	.02500	.0187500	.00653025	.00489768
Charles B. Read	.05000	.0375000	.01306050	.00979537
Norman L. Stevens	.06500	.0487500	.01697864	.01273398
First Century Oil, Inc.	.05000	.0375000	.01306050	.00979537
Est. John H. Miller, II	.02750	.0206250	.00718328	.00538746
W.W. Shipley, V	.06250	.0468750	.01632563	.01224422
Norman L. Stevens, III	.01000	.0075000	.00261210	.00195908
Earle May	.02000	.0150000	.00522420	.00391815
Lawrence & Julie Rennett	.02000	.0150000	.00522420	.00391815
Richard F. Deich	.01000	.0075000	.00261210	.00195908
Elliot-Hall Company	.05000	.0375000	.01306050	.00979538
T.T. Sanders, Jr.	.05000	.0375000	.01306050	.00979538
Bruce A. Stubbs	.01000	.0075000	.00261210	.00195908
W.W. Shipley, IV	.03125	.0234375	.00816281	.00612211
Bert & Sherry Blackard	.03125	.0234375	.00816281	.00612211
NGC Energy Co.	.30250	.2268750	.07901603	.05926202
Marion T. Turner	.06250	.0468750	.01632563	.01224422
Midwest Inv. Co.	-0-	.1250000	-0-	.03265125
Bogle Farms, Inc.	-0-	.0625000	-0-	.01632563
Dartmouth College	-0-	.0625000	-0-	.01632563
	<u>1.00000</u>	<u>1.0000000</u>	<u>.26121000</u>	<u>.26121000</u>

EXHIBIT "C" PART II

Participation of all Owners within Unit Area as to Share of Unit Expense and
Share of Unit Production.

BUNKER HILL SECONDARY RECOVERY UNIT
EDDY COUNTY, NEW MEXICO

<u>Name</u> <u>Tract No.</u>	<u>Percentage (decimal)</u> <u>Share of Unit</u>	
	<u>Expenses</u>	<u>Production</u>
<u>Amoco Production Co.</u>		
10.	-0- (ORR)	.00190313
11.	-0- (ORR)	.00460375
12.	-0- (ORR)	.00130417
	-0-	.00781105
<u>Arnold Ballard</u>		
5.	.00021620	.00017566
7.	.00048120	.00037594
8.	.00016710	.00012533
10.	.00034800	.00028547
	.00121250	.00096240
<u>Haskell H. Bass, Jr.</u>		
5.	.00021620	.00017566
7.	.00048120	.00037594
8.	.00016710	.00012533
10.	.00034800	.00028547
	.00121250	.00096240
<u>Carolyn Beall</u>		
4.	.00117230	.00087923
11.	.00036830	.00027623
	.00154060	.00115546
<u>Patricia Stevens Bell</u>		
4.	.00058615	.00043961
11.	.00018415	.00013811
	.00077030	.00057772
<u>Bert Blackard & Sherry Blackard</u>		
9.	.00330600	.00247950
12.	.00048906	.00036680
13.	.00816281	.00612211
	.01195787	.00896841
<u>Bogle Farms, Inc.</u>		
12.	-0- (RI)	.00032604
13.	-0- (RI)	.01632563
	-0-	.01665167
<u>Hugh Boyle</u>		
9.	.00330600	.00247950
<u>Vernon L. Burkhead</u>		
4.	.00058615	.00043961
11.	.00018415	.00013810
	.00077030	.00057771

<u>Name</u> <u>Tract No.</u>	<u>Expenses</u>	<u>Production</u>
<u>Chaparral Partners</u>		
9.	.00330600	.00247950
<u>Chevron USA, Inc.</u>		
3.	-0- (ORR)	.02820625
<u>Trustees, Dartmouth College</u>		
12.	-0- (RI)	.00032604
13.	<u>-0- (RI)</u>	<u>.01632563</u>
	-0-	.01665167
<u>Richard F. Deich</u>		
3.	.00225650	.00169238
9.	.00198360	.00148770
12.	.00015650	.00011738
13.	<u>.00261210</u>	<u>.00195908</u>
	.00700870	.00525654
<u>D.H.B. Partnership</u>		
4.	.00081205	.00060903
11.	<u>.00025512</u>	<u>.00019134</u>
	.00106717	.00080037
<u>Estate James F. Elliott</u>		
4.	.00058615	.00042789
11.	<u>.00018415</u>	<u>.00013443</u>
	.00077030	.00056232
<u>Elliott-Hall Company</u>		
3.	.01128250	.00846188
9.	.00330600	.00247950
12.	.00078250	.00058688
13.	<u>.01306050</u>	<u>.00979538</u>
	.02843150	.02132364
<u>Enron Oil & Gas Co.</u>		
6.	-0- (ORR)	.00178031
7.	-0- (ORR)	.00150375
8.	-0- (ORR)	.00104438
9.	<u>-0- (ORR)</u>	<u>.00413250</u>
	-0-	.00846094
<u>Featherstone Development Corp.</u>		
1.	-0-	.00511063
<u>Olen F. Featherstone, II</u>		
1.	.00408850	.00306637
1.	-0- (ORR)	.00511063
2.	<u>.00086600</u>	<u>.00060620</u>
	.00495450	.00878320
<u>F.I.C., Inc.</u>		
4.	.00664296	.00484936
11.	<u>.00208701</u>	<u>.00152352</u>
	.00872997	.00637288

<u>Name</u>		<u>Expenses</u>	<u>Production</u>
<u>Tract No.</u>			
<u>First Century Oil, Inc.</u>			
	4.	.00322383	.00240028
	5.	.00189174	.00153704
	7.	.00421050	.00328944
	8.	.00146213	.00109659
	10.	.00304500	.00249785
	11.	.00101283	.00075408
	12.	.00078250	.00058688
	13.	<u>.01306050</u>	<u>.00979537</u>
		.02868903	.02195753
<u>FISCO, Inc.</u>			
	3.	.00564125	.00423093
	4.	.00908533	.00679641
	5.	.00054050	.00043917
	7.	.00120300	.00093985
	8.	.00041774	.00031330
	10.	.00087000	.00071367
	11.	.00285433	.00213522
	12.	.00039124	.00029343
	13.	<u>.00653025</u>	<u>.00489768</u>
		.02753364	.02075966
<u>L. Sterling Hanel</u>			
	9.	.00198360	.00148770
<u>David S. Harle</u>			
	7.	.00024060	.00018797
	8.	.00008355	.00006266
	9.	<u>.00066120</u>	<u>.00049590</u>
		.00098535	.00074653
<u>John L. Hauer</u>			
	4.	.00117230	.00087923
	11.	<u>.00036830</u>	<u>.00027623</u>
		.00154060	.00115546
<u>Charles W. Hicks</u>			
	1.	.00817700	.00613274
	2.	<u>.00173200</u>	<u>.00121240</u>
		.00990900	.00734514
<u>B. F. Houston</u>			
	9.	.00165300	.00123975
<u>George H. Hunker</u>			
	9.	.00165300	.00123974
<u>H & S Oil Co.</u>			
	1.	.02044250	.01533187
	2.	<u>.00433000</u>	<u>.00303100</u>
		.02477250	.01836287

<u>Name</u> <u>Tract No.</u>	<u>Expenses</u>	<u>Production</u>
<u>Henry Jaffe, Trustee</u>		
4.	.00117230	.00087923
11.	.00036830	.00027623
	<u>.00154060</u>	<u>.00115546</u>
<u>Michael Jaffe</u>		
4.	.00117230	.00087923
11.	.00036830	.00027623
	<u>.00154060</u>	<u>.00115546</u>
<u>E. C. Jones</u>		
2.	-0- (ORR)	.00129900
<u>Harold E. Jones</u>		
2.	-0- (ORR)	.00086600
<u>James W. Keay</u>		
4.	.00117230	.00087923
11.	.00036830	.00027623
	<u>.00154060</u>	<u>.00115546</u>
<u>Lantana Oil Co.</u>		
4.	.00234460	.00175845
11.	.00073660	.00055245
	<u>.00308120</u>	<u>.00231090</u>
<u>C. E. LaRue & B. N. Muncy, Jr.</u>		
1.	.02861950	.02146463
2.	.00606200	.00424340
	<u>.03468150</u>	<u>.02570803</u>
<u>William J. LeMay</u>		
6.	-0- (ORR)	.00178031
7.	-0- (ORR)	.00150375
	-0-	<u>.00328406</u>
<u>Pauline M. Lepley</u>		
5.	.00021620	.00017566
7.	.00048120	.00037594
8.	.00016710	.00012533
9.	.00066120	.00049590
10.	.00034800	.00028547
	<u>.00187370</u>	<u>.00145830</u>
<u>Lucinda Loveless</u>		
4.	.00048846	.00036634
11.	.00015346	.00011509
	<u>.00064192</u>	<u>.00048143</u>
<u>U.S. Marshall</u>		
9.	.00132240	.00099180

<u>Name</u> <u>Tract No.</u>	<u>Expenses</u>	<u>Production</u>
<u>Earle C. May</u>		
3.	.00451300	.00338475
12.	.00031300	.00023475
13.	<u>.00522420</u>	<u>.00391815</u>
	.01005020	.00753765
<u>Frank McGinnis</u>		
4.	.00058615	.00043961
11.	<u>.00018415</u>	<u>.00013810</u>
	.00077030	.00057771
<u>John McIntire</u>		
9.	.00132240	.00099180
<u>Charles R. Meeker, III</u>		
4.	.00058615	.00043961
11.	<u>.00018415</u>	<u>.00013810</u>
	.00077030	.00057771
<u>Charles R. Meeker, III, Trust</u>		
4.	.00058615	.00043961
11.	<u>.00018415</u>	<u>.00013810</u>
	.00077030	.00057771
<u>Midwest Investment Co.</u>		
12.	-0- (ORR)	.00065208
13.	<u>-0- (ORR)</u>	<u>.03265125</u>
	-0-	.03330333
<u>Estate of John H. Miller, II</u>		
3.	.00620537	.00465403
5.	.00086480	.00070265
6.	.00712124	.00556347
12.	.00043038	.00032278
13.	<u>.00718328</u>	<u>.00538746</u>
	.02180507	.01663039
<u>Harriett C. Miller</u>		
3.	.00620538	.00465403
<u>Mobil Producing TX & NM</u>		
5.	-0- (ORR)	.00135125
<u>Morco Geological</u>		
9.	.00132240	.00099180
<u>A. Nelson Muncy</u>		
1.	.00408850	.00306638
2.	<u>.0008660</u>	<u>.00060620</u>
	.00495450	.00367258
<u>Martin B. Muncy</u>		
1.	.00408850	.00306638
2.	<u>.0008660</u>	<u>.00060620</u>
	.00495450	.00367258

<u>Name</u>		
<u>Tract No.</u>	<u>Expenses</u>	<u>Production</u>
<u>NGC Energy Co.</u>		
3.	.06656675	.04992506
4.	.03399024	.02549269
7.	.01401495	.01094918
10.	.01013550	.00831428
11.	.01067867	.00800901
12.	.00473413	.00355059
13.	.07901603	.05926202
	<u>.21913627</u>	<u>.16550283</u>
 <u>Michael Norton, III</u>		
4.	.00117230	.00087923
11.	.00036830	.00027623
	<u>.00154060</u>	<u>.00115546</u>
 <u>Warren B. Patterson</u>		
5.	.00021620	.00017567
6.	.00712125	.00556348
7.	.00048120	.00037593
8.	.00016710	.00012532
10.	.00034800	.00028546
	<u>.00833375</u>	<u>.00652586</u>
 <u>Charles B. Read</u>		
3.	.01128250	.00846187
4.	.01367683	.01025763
5.	.00216200	.00175663
6.	.01068188	.00834522
7.	.00481200	.00375938
8.	.00167100	.00125325
9.	.00247950	.00185963
10.	.00348000	.00285469
11.	.00429681	.00322263
12.	.00078250	.00058687
13.	.01306050	.00979537
	<u>.06838552</u>	<u>.05215317</u>
 <u>Gloria McElroy Read</u>		
4.	.00117230	.00087923
11.	.00036830	.00027623
	<u>.00154060</u>	<u>.00115546</u>
 <u>James B. Read</u>		
4.	.00117230	.00087922
11.	.00036830	.00027623
	<u>.00154060</u>	<u>.00115545</u>
 <u>Charles B. Read Trust "A"</u>		
3.	.01128250	.00846188
 <u>Read & Stevens, Inc.</u>		
4.	.00234460	.00175845
5.	.00032430	.00026349
7.	.00072180	.00056391
8.	.00025065	.00018799
9.	.00066120	.00049590
10.	.00052200	.00042820
11.	.00073660	.00055245
	<u>.00556115</u>	<u>.00425039</u>

<u>Name</u>		<u>Expenses</u>	<u>Production</u>
<u>Tract No.</u>			
<u>Stanley Reed</u>			
9.		.00132240	.00099180
<u>William E. Read</u>			
3.		.01410312	.01057734
4.		.00192984	.00144738
5.		.00135125	.00109789
6.		.00356063	.00278174
7.		.00300750	.00234960
8.		.00104437	.00078327
9.		.00165300	.00123975
10.		.00217500	.00178417
11.		.00060630	.00045472
12.		.00097812	.00073358
13.		<u>.01632562</u>	<u>.01224421</u>
		.04673475	.03549365
<u>Lawrence Rennett & Julie Rennett</u>			
3.		.00451300	.00338475
12.		.00031300	.00023475
13.		<u>.00522420</u>	<u>.00391815</u>
		.01005020	.00753765
<u>A.W. Rutter</u>			
2.		-0- (ORR)	.00032475
<u>A.W. Rutter, Jr.</u>			
2.		-0- (ORR)	.00032475
<u>T. T. Sanders, Jr.</u>			
3.		.01128250	.00846188
12.		.00078250	.00058688
13.		<u>.01306050</u>	<u>.00979538</u>
		.02512550	.01884414
<u>Earl E. Schatz</u>			
9.		.00132240	.00099180
<u>Carolyn L. Schlicher</u>			
4.		.0048846	.00036634
11.		<u>.00015346</u>	<u>.00011509</u>
		.00064192	.00048143
<u>Lawrence J. Sheehan</u>			
4.		.00117230	.00087923
11.		<u>.00036830</u>	<u>.00027623</u>
		.00154060	.00115546

<u>Name</u>		<u>Expenses</u>	<u>Production</u>
<u>Tract No.</u>			
<u>W. W. Shipley, IV</u>			
	3.	.02820625	.02115469
	5.	.00270250	.00219578
	6.	.00712125	.00556348
	7.	.00601500	.00469922
	8.	.00208875	.00156656
	9.	.00330600	.00247950
	10.	.00435000	.00356836
	12.	.00097813	.00073359
	13.	<u>.01632563</u>	<u>.01224422</u>
		.07109351	.05420540
<u>W. W. Shipley, V</u>			
	12.	.00048906	.00036680
	13.	<u>.00816281</u>	<u>.00612211</u>
		.00865187	.00648891
<u>J. E. Simmons, Trust "A"</u>			
	5.	.00067563	.00054894
	6.	.00178031	.00139087
	7.	.00150375	.00117481
	8.	.00052219	.00039164
	10.	<u>.00108750</u>	<u>.00089209</u>
		.00556938	.00439835
<u>J. E. Simmons, Trust "B"</u>			
	5.	.00067563	.00054895
	6.	.00178031	.00139087
	7.	.00150375	.00117480
	8.	.00052219	.00039164
	10.	<u>.00108750</u>	<u>.00089209</u>
		.00556938	.00439835
<u>Beulah L. Simmons, Trust "A"</u>			
	5.	.00067563	.00054894
	6.	.00178031	.00139087
	7.	.00150375	.00117480
	8.	.00052219	.00039164
	10.	<u>.00108750</u>	<u>.00089209</u>
		.00556938	.00439834
<u>Beulah L. Simmons, Trust "B"</u>			
	5.	.00067563	.00054895
	6.	.00178031	.00139087
	7.	.00150375	.00117481
	8.	.00052219	.00039164
	10.	<u>.00108750</u>	<u>.00089209</u>
		.00556938	.00439836
<u>Nadine Loveless Smith</u>			
	4.	.00097691	.00073269
	11.	<u>.00030691</u>	<u>.00023019</u>
		.00128382	.00096288
<u>Robert Smith</u>			
	9.	.00066120	.00049590
<u>Samuel Smith</u>			
	4.	-0- (ORR)	.00025009
	11.	<u>-0- (ORR)</u>	<u>.00007857</u>
		-0-	.00032866

<u>Name</u> <u>Tract No.</u>	<u>Expenses</u>	<u>Production</u>
<u>Snow Oil & Gas, Inc.</u>		
9.	.00066120	.00049590
<u>Stevens & Co., Inc.</u>		
5.	.00032430	.00026349
6.	.00356063	.00278173
7.	.00048120	.00037594
8.	.00016710	.00012533
10.	<u>.00052200</u>	<u>.00042821</u>
	.00505523	.00397470
<u>Barbara J. Stevens</u>		
4.	.00117230	.00087922
11.	<u>.00036820</u>	<u>.00027623</u>
	.00154060	.00115545
<u>David M. Stevens</u>		
4.	.00058615	.00043961
11.	<u>.00018415</u>	<u>.00013810</u>
	.00077030	.00057771
<u>Norman L. Stevens, Jr.</u>		
3.	.01466725	.01100044
4.	.01250454	.00937840
5.	.00135124	.00109789
7.	.00300750	.00234960
8.	.00104437	.00078328
9.	.00247950	.00185963
10.	.00217500	.00178418
11.	.00392855	.00294640
12.	.00101725	.00076293
13.	<u>.01697864</u>	<u>.01273398</u>
	.05915384	.04469673
<u>Norman L. Stevens, III</u>		
3.	.00225650	.00169238
4.	.00234460	.00175844
11.	.00073660	.00055245
12.	.00015650	.00011738
13.	<u>.00261210</u>	<u>.00195908</u>
	.00810630	.00607973
<u>T. C. Stromberg</u>		
1.	.00408850	.00306638
2.	<u>.00086600</u>	<u>.00060620</u>
	.00495450	.00367258
<u>Bruce A. Stubbs</u>		
4.	.00351690	.00263767
5.	.00021620	.00017566
7.	.00048120	.00037594
8.	.00016710	.00012533
9.	.00066120	.00049590
10.	.00034800	.00028547
11.	.00110490	.00082868
12.	.00015650	.00011738
13.	<u>.00261212</u>	<u>.00195908</u>
	.00926410	.00700111

<u>Name</u>		<u>Expenses</u>	<u>Production</u>
<u>Tract No.</u>			
<u>Henry L. Taylor</u>			
4.		.00351690	.00256734
11.		.00110490	.00080658
		<u>.00462180</u>	<u>.00337392</u>
<u>Raymond R. Trollinger, Jr.</u>			
3.		.01128250	.00846187
9.		.00330600	.00247950
12.		.00078250	.00058688
13.		.01306050	.00979537
		<u>.02843150</u>	<u>.02132362</u>
<u>John Turner</u>			
5.		.00067562	.00054895
6.		.00356063	.00278174
		<u>.00423625</u>	<u>.00333069</u>
<u>Marion T. Turner</u>			
3.		.01410313	.01057734
4.		.00117230	.00087923
7.		.00150375	.00117481
8.		.00052219	.00039164
9.		.00066120	.00049590
10.		.00108750	.00089209
11.		.00036830	.00027623
12.		.00097813	.00073359
13.		.01632563	.01224422
		<u>.03672213</u>	<u>.02766505</u>
<u>Texaco Producing, Inc.</u>			
4.		-0- (ORR)	.01465375
<u>Union Texas Exploration Corp.</u>			
6.		-0- (ORR)	.00178031
7.		-0- (ORR)	.00150375
8.		-0- (ORR)	.00104438
9.		-0- (ORR)	.00413250
		<u>-0-</u>	<u>.00846094</u>
<u>Frederick W. Veninga</u>			
9.		.00330600	.00247950
<u>Westway Petro J/V</u>			
5.		.00543203	.00441352
8.		.00486679	.00365009
9.		.01322400	.00991800
		<u>.02352282</u>	<u>.01798161</u>
<u>Joe Wigley</u>			
4.		.00117230	.00087923
9.		.00066120	.00049590
11.		.00036830	.00027623
12.		.00015650	.00011738
13.		.00261210	.00195907
		<u>.00497040</u>	<u>.00372781</u>
<u>G. L. Wilbanks</u>			
2.		-0- (ORR)	.00021650

<u>Name</u>		<u>Expenses</u>	<u>Production</u>
<u>Tract No.</u>			
<u>Leland Wittkopp</u>			
1.		.00817700	.00613274
2.		<u>.00173200</u>	<u>.00121240</u>
		.00990900	.00734514
<u>Gerald H. Wright</u>			
6.		.00712125	.00556348
<u>W. P. A., Inc. (FDIC)</u>			
9.		.00330600	.00247950
<u>Yankee Ventures/82</u>			
5.		.00021620	.00017566
7.		.00048120	.00037594
8.		.00016710	.00012533
9.		.00066120	.00049590
10.		<u>.00034800</u>	<u>.00028547</u>
		.00187370	.00145830
<u>Betty R. Young</u>			
4.		.00117230	.00087922
11.		<u>.00036830</u>	<u>.00027623</u>
		.00154060	.00115545
<u>State of New Mexico</u>			
3.		-0-	.02820625
4.		-0-	.01465375
5.		-0-	.00270250
6.		-0-	.00712125
7.		-0-	.00601500
8.		-0-	.00208875
9.		-0-	.00826522
10.		-0-	.00435000
11.		-0-	.00460375
12.		<u>-0-</u>	<u>.00130417</u>
		-0-	.07931042
<u>United States, BLM-MMS</u>			
1.		-0-	.01022125
2.		<u>-0-</u>	<u>.00216500</u>
		-0-	.01238625
<u>Total Unit Area</u>		<u>1.00000000</u>	<u>1.00000000</u>

EXHIBIT "D"

ATTACHED TO AND MADE A PART OF UNIT OPERATING AGREEMENT
FOR THE BUNKER HILL UNIT, DATED November 1, 1988,
READ & STEVENS, INC., OPERATOR

Operator and Operator's contractors and subcontractors shall, during the drilling and completing of any and all well or wells drilled on the Unit Area and during the performance of all operations, carry the following described minimum insurance coverage on the Unit Area.

- A. Employer's Liability with limit of \$500,000. and Workmen's Compensation Insurance covering Operator's employees and the employees of Operator's contractors and subcontractors engaged in operations under this Agreement, in compliance with the laws of the State where the work is to be performed.
- B. General Liability Insurance covering the parties hereto in connection with all operations conducted by Operator or Operator's contractors and subcontractors in the amount of \$1,000,000. combined single limit or equivalent.
- C. Automobile Liability and Property Damage Insurance covering the parties hereto in connection with all operations conducted by Operator or Operator's contractors and subcontractors with a combined Bodily Injury and Death limit of \$1,000,000.

EXHIBIT " E "

Attached to and made a part of Unit Operating Agreement for the Bunker Hill Unit,
(Secondary Recovery), Read & Stevens, Inc., Unit Operator

ACCOUNTING PROCEDURE
JOINT OPERATIONS

I. GENERAL PROVISIONS

1. Definitions

"Joint Property" shall mean the real and personal property subject to the agreement to which this Accounting Procedure is attached.

"Joint Operations" shall mean all operations necessary or proper for the development, operation, protection and maintenance of the Joint Property.

"Joint Account" shall mean the account showing the charges paid and credits received in the conduct of the Joint Operations and which are to be shared by the Parties.

"Operator" shall mean the party designated to conduct the Joint Operations.

"Non-Operators" shall mean the Parties to this agreement other than the Operator.

"Parties" shall mean Operator and Non-Operators.

"First Level Supervisors" shall mean those employees whose primary function in Joint Operations is the direct supervision of other employees and/or contract labor directly employed on the Joint Property in a field operating capacity.

"Technical Employees" shall mean those employees having special and specific engineering, geological or other professional skills, and whose primary function in Joint Operations is the handling of specific operating conditions and problems for the benefit of the Joint Property.

"Personal Expenses" shall mean travel and other reasonable reimbursable expenses of Operator's employees.

"Material" shall mean personal property, equipment or supplies acquired or held for use on the Joint Property.

"Controllable Material" shall mean Material which at the time is so classified in the Material Classification Manual as most recently recommended by the Council of Petroleum Accountants Societies.

2. Statement and Billings

Operator shall bill Non-Operators on or before the last day of each month for their proportionate share of the Joint Account for the preceding month. Such bills will be accompanied by statements which identify the authority for expenditure, lease or facility, and all charges and credits summarized by appropriate classifications of investment and expense except that items of Controllable Material and unusual charges and credits shall be separately identified and fully described in detail.

3. Advances and Payments by Non-Operators Refer to Article 12. of the Agreement for Operator's Lien and additional provisions.

A. Unless otherwise provided for in the agreement, the Operator may require the Non-Operators to advance their share of estimated cash outlay for the succeeding month's operation within fifteen (15) days after receipt of the billing or by the first day of the month for which the advance is required, whichever is later. Operator shall adjust each monthly billing to reflect advances received from the Non-Operators.

B. Each Non-Operator shall pay its proportion of all bills within fifteen (15) days after receipt. If payment is not made within such time, the unpaid balance shall bear interest monthly at the rate of 1½% (one and one-half) ~~on the first day of the month in which delinquency occurs plus 1% of the maximum contract rate permitted by the applicable usury laws in the state in which the Joint Property is located, whichever is the lesser,~~ plus attorney's fees, court costs, and other costs in connection with the collection of unpaid amounts.

4. Adjustments

Payment of any such bills shall not prejudice the right of any Non-Operator to protest or question the correctness thereof; provided, however, all bills and statements rendered to Non-Operators by Operator during any calendar year shall conclusively be presumed to be true and correct after twenty-four (24) months following the end of any such calendar year, unless within the said twenty-four (24) month period a Non-Operator takes written exception thereto and makes claim on Operator for adjustment. No adjustment favorable to Operator shall be made unless it is made within the same prescribed period. The provisions of this paragraph shall not prevent adjustments resulting from a physical inventory of Controllable Material as provided for in Section V.

5. Audits

- A. A Non-Operator, upon notice in writing to Operator and all other Non-Operators, shall have the right to audit Operator's accounts and records relating to the Joint Account for any calendar year within the twenty-four (24) month period following the end of such calendar year; provided, however, the making of an audit shall not extend the time for the taking of written exception to and the adjustments of accounts as provided for in Paragraph 4 of this Section I. Where there are two or more Non-Operators, the Non-Operators shall make every reasonable effort to conduct a joint audit in a manner which will result in a minimum of inconvenience to the Operator. Operator shall bear no portion of the Non-Operators' audit cost incurred under this paragraph unless agreed to by the Operator. The audits shall not be conducted more than once each year without prior approval of Operator, except upon the resignation or removal of the Operator, and shall be made at the expense of those Non-Operators approving such audit.
- B. The Operator shall reply in writing to an audit report within 180 days after receipt of such report.

6. Approval By Non-Operators Refer to Article 4. of the Agreement for voting procedures.

Where an approval or other agreement of the Parties or Non-Operators is expressly required under other sections of this Accounting Procedure and if the agreement to which this Accounting Procedure is attached contains no contrary provisions in regard thereto, Operator shall notify all Non-Operators of the Operator's proposal, and the agreement or approval of a majority in interest of the Non-Operators shall be controlling on all Non-Operators.

II. DIRECT CHARGES

Operator shall charge the Joint Account with the following items:

1. Ecological and Environmental

Costs incurred for the benefit of the Joint Property as a result of governmental or regulatory requirements to satisfy environmental considerations applicable to the Joint Operations. Such costs may include surveys of an ecological or archaeological nature and pollution control procedures as required by applicable laws and regulations.

2. Rentals and Royalties

Lease rentals and royalties paid by Operator for the Joint Operations.

3. Labor

- A. (1) Salaries and wages of Operator's field employees directly employed on the Joint Property in the conduct of Joint Operations.
- (2) Salaries of First Level Supervisors in the field.
- (3) Salaries and wages of Technical Employees directly employed on the Joint Property if such charges are excluded from the overhead rates.
- (4) Salaries and wages of Technical Employees either temporarily or permanently assigned to and directly employed in the operation of the Joint Property if such charges are excluded from the overhead rates.
- B. Operator's cost of holiday, vacation, sickness and disability benefits and other customary allowances paid to employees whose salaries and wages are chargeable to the Joint Account under Paragraph 3A of this Section II. Such costs under this Paragraph 3B may be charged on a "when and as paid basis" or by "percentage assessment" on the amount of salaries and wages chargeable to the Joint Account under Paragraph 3A of this Section II. If percentage assessment is used, the rate shall be based on the Operator's cost experience.
- C. Expenditures or contributions made pursuant to assessments imposed by governmental authority which are applicable to Operator's costs chargeable to the Joint Account under Paragraphs 3A and 3B of this Section II.
- D. Personal Expenses of those employees whose salaries and wages are chargeable to the Joint Account under Paragraph 3A of this Section II.

4. Employee Benefits

Operator's current costs of established plans for employees' group life insurance, hospitalization, pension, retirement, stock purchase, thrift, bonus, and other benefit plans of a like nature, applicable to Operator's labor cost chargeable to the Joint Account under Paragraphs 3A and 3B of this Section II shall be Operator's actual cost not to exceed the percent most recently recommended by the Council of Petroleum Accountants Societies, or twenty-six percent (26%), whichever percent is higher.

5. Material

Material purchased or furnished by Operator for use on the Joint Property as provided under Section IV. Only such Material shall be purchased for or transferred to the Joint Property as may be required for immediate use and is reasonably practical and consistent with efficient and economical operations. The accumulation of surplus stocks shall be avoided.

6. Transportation

Transportation of employees and Material necessary for the Joint Operations but subject to the following limitations:

- A. If Material is moved to the Joint Property from the Operator's warehouse or other properties, no charge shall be made to the Joint Account for a distance greater than the distance from the nearest reliable supply store where like material is normally available or railway receiving point nearest the Joint Property unless agreed to by the Parties.

- B. If surplus Material is moved to Operator's warehouse or other storage point, no charge shall be made to the Joint Account for a distance greater than the distance to the nearest reliable supply store where like material is normally available, or railway receiving point nearest the Joint Property unless agreed to by the Parties. No charge shall be made to the Joint Account for moving Material to other properties belonging to Operator, unless agreed to by the Parties.
- C. In the application of subparagraphs A and B above, the option to equalize or charge actual trucking cost is available when the actual charge is \$400 or less excluding accessorial charges. The \$400 will be adjusted to the amount most recently recommended by the Council of Petroleum Accountants Societies.

7. Services

The cost of contract services, equipment and utilities provided by outside sources, except services excluded by Paragraph 10 of Section II and Paragraph i, ii, and iii, of Section III. The cost of professional consultant services and contract services of technical personnel directly engaged on the Joint Property if such charges are excluded from the overhead rates. The cost of professional consultant services or contract services of technical personnel not directly engaged on the Joint Property shall not be charged to the Joint Account unless previously agreed to by the Parties.

8. Equipment and Facilities Furnished By Operator

A. Operator shall charge the Joint Account for use of Operator owned equipment and facilities at rates commensurate with costs of ownership and operation. Such rates shall include costs of maintenance, repairs, other operating expense, insurance, taxes, depreciation, and interest on gross investment less accumulated depreciation not to exceed eight percent (8%) per annum. Such rates shall not exceed average commercial rates currently prevailing in the immediate area of the Joint Property.

B. In lieu of charges in paragraph 8A above, Operator may elect to use average commercial rates prevailing in the immediate area of the Joint Property less 20%. For automotive equipment, Operator may elect to use rates published by the Petroleum Motor Transport Association.

9. Damages and Losses to Joint Property

All costs or expenses necessary for the repair or replacement of Joint Property made necessary because of damages or losses incurred by fire, flood, storm, theft, accident, or other cause, except those resulting from Operator's gross negligence or willful misconduct. Operator shall furnish Non-Operator written notice of damages or losses incurred as soon as practicable after a report thereof has been received by Operator.

10. Legal Expense

Expense of handling, investigating and settling litigation or claims, discharging of liens, payment of judgements and amounts paid for settlement of claims incurred in or resulting from operations under the agreement or necessary to protect or recover the Joint Property, except that no charge for services of Operator's legal staff or fees or expense of outside attorneys shall be made unless previously agreed to by the Parties. All other legal expense is considered to be covered by the overhead provisions of Section III unless otherwise agreed to by the Parties, except as provided in Section I, Paragraph 3.

11. Taxes

All taxes of every kind and nature assessed or levied upon or in connection with the Joint Property, the operation thereof, or the production therefrom, and which taxes have been paid by the Operator for the benefit of the Parties. If the ad valorem taxes are based in whole or in part upon separate valuations of each party's working interest, then notwithstanding anything to the contrary herein, charges to the Joint Account shall be made and paid by the Parties hereto in accordance with the tax value generated by each party's working interest.

12. Insurance

Net premiums paid for insurance required to be carried for the Joint Operations for the protection of the Parties. In the event Joint Operations are conducted in a state in which Operator may act as self-insurer for Worker's Compensation and/or Employers Liability under the respective state's laws, Operator may, at its election, include the risk under its self-insurance program and in that event, Operator shall include a charge at Operator's cost not to exceed manual rates.

13. Abandonment and Reclamation

Costs incurred for abandonment of the Joint Property, including costs required by governmental or other regulatory authority.

14. Communications

Cost of acquiring, leasing, installing, operating, repairing and maintaining communication systems, including radio and microwave facilities directly serving the Joint Property. In the event communication facilities/systems serving the Joint Property are Operator owned, charges to the Joint Account shall be made as provided in Paragraph 8 of this Section II.

15. Other Expenditures

Any other expenditure not covered or dealt with in the foregoing provisions of this Section II, or in Section III and which is of direct benefit to the Joint Property and is incurred by the Operator in the necessary and proper conduct of the Joint Operations.

III. OVERHEAD

1. Overhead - Drilling and Producing Operations

- i. As compensation for administrative, supervision, office services and warehousing costs, Operator shall charge drilling and producing operations on either:

() Fixed Rate Basis, Paragraph 1A, or
 () Percentage Basis, Paragraph 1B

Unless otherwise agreed to by the Parties, such charge shall be in lieu of costs and expenses of all offices and salaries or wages plus applicable burdens and expenses of all personnel, except those directly chargeable under Paragraph 3A, Section II. The cost and expense of services from outside sources in connection with matters of taxation, traffic, accounting or matters before or involving governmental agencies shall be considered as included in the overhead rates provided for in the above selected Paragraph of this Section III unless such cost and expense are agreed to by the Parties as a direct charge to the Joint Account.

- ii. The salaries, wages and Personal Expenses of Technical Employees and/or the cost of professional consultant services and contract services of technical personnel directly employed on the Joint Property:

() shall be covered by the overhead rates, or
 () shall not be covered by the overhead rates.

- iii. The salaries, wages and Personal Expenses of Technical Employees and/or costs of professional consultant services and contract services of technical personnel either temporarily or permanently assigned to and directly employed in the operation of the Joint Property:

() shall be covered by the overhead rates, or
 () shall not be covered by the overhead rates.

A. Overhead - Fixed Rate Basis

- (1) Operator shall charge the Joint Account at the following rates per well per month:

Drilling Well Rate \$ 3,500.00
 (Prorated for less than a full month)

Producing Well Rate \$ 325.00

- (2) Application of Overhead - Fixed Rate Basis shall be as follows:

(a) Drilling Well Rate

- (1) Charges for drilling wells shall begin on the date the well is spudded and terminate on the date the drilling rig, completion rig, or other units used in completion of the well is released, whichever is later, except that no charge shall be made during suspension of drilling or completion operations for fifteen (15) or more consecutive calendar days.
- (2) Charges for wells undergoing any type of workover or recompletion for a period of five (5) consecutive work days or more shall be made at the drilling well rate. Such charges shall be applied for the period from date workover operations, with rig or other units used in workover, commence through date of rig or other unit release, except that no charge shall be made during suspension of operations for fifteen (15) or more consecutive calendar days.

(b) Producing Well Rates

- (1) An active well either produced or injected into for any portion of the month shall be considered as a one-well charge for the entire month.
- (2) Each active completion in a multi-completed well in which production is not commingled down hole shall be considered as a one-well charge providing each completion is considered a separate well by the governing regulatory authority.
- (3) An inactive gas well shut in because of overproduction or failure of purchaser to take the production shall be considered as a one-well charge providing the gas well is directly connected to a permanent sales outlet.
- (4) A one-well charge shall be made for the month in which plugging and abandonment operations are completed on any well. This one-well charge shall be made whether or not the well has produced except when drilling well rate applies.
- (5) All other inactive wells (including but not limited to inactive wells covered by unit allowable, lease allowable, transferred allowable, etc.) shall not qualify for an overhead charge.
- (3) The well rates shall be adjusted as of the first day of April each year following the effective date of the agreement to which this Accounting Procedure is attached. The adjustment shall be computed by multiplying the rate currently in use by the percentage increase or decrease in the average weekly earnings of Crude Petroleum and Gas Production Workers for the last calendar year compared to the calendar year preceding as shown by the index of average weekly earnings of Crude Petroleum and Gas Production Workers as published by the United States Department of Labor, Bureau of Labor Statistics, or the equivalent Canadian index as published by Statistics Canada, as applicable. The adjusted rates shall be the rates currently in use, plus or minus the computed adjustment.

~~B. Overhead - Percentage Basis~~

- ~~(1) Operator shall charge the Joint Account at the following rates:~~

(a) Development

_____ Percent (_____ %) of the cost of development of the Joint Property exclusive of costs provided under Paragraph 10 of Section II and all salvage credits.

(b) Operating

_____ Percent (_____ %) of the cost of operating the Joint Property exclusive of costs provided under Paragraphs 2 and 10 of Section II, all salvage credits, the value of injected substances purchased for secondary recovery and all taxes and assessments which are levied, assessed and paid upon the mineral interest in and to the Joint Property.

(2) Application of Overhead - Percentage Basis shall be as follows:

For the purpose of determining charges on a percentage basis under Paragraph 1B of this Section III, development shall include all costs in connection with drilling, re-drilling, deepening, or any remedial operations on any or all wells involving the use of drilling rig and crew capable of drilling to the producing interval on the Joint Property; also, preliminary expenditures necessary in preparation for drilling and expenditures incurred in abandoning when the well is not completed as a producer, and original cost of construction or installation of fixed assets, the expansion of fixed assets and any other project clearly discernible as a fixed asset, except Major Construction as defined in Paragraph 2 of this Section III. All other costs shall be considered as operating.

2. Overhead - Major Construction

To compensate Operator for overhead costs incurred in the construction and installation of fixed assets, the expansion of fixed assets, and any other project clearly discernible as a fixed asset required for the development and operation of the Joint Property, Operator shall ~~either~~ negotiate a rate prior to the beginning of construction, ~~or shall charge the Joint Account for overhead based on the following rates for any Major Construction project in excess of \$ _____ :~~

- A. _____ % of first \$100,000 or total cost if less, plus
- B. _____ % of costs in excess of \$100,000 but less than \$1,000,000, plus
- C. _____ % of costs in excess of \$1,000,000.

Total cost shall mean the gross cost of any one project. For the purpose of this paragraph, the component parts of a single project shall not be treated separately and the cost of drilling and workover wells and artificial lift equipment shall be excluded.

3. Catastrophe Overhead

To compensate Operator for overhead costs incurred in the event of expenditures resulting from a single occurrence due to oil spill, blowout, explosion, fire, storm, hurricane, or other catastrophes as agreed to by the Parties, which are necessary to restore the Joint Property to the equivalent condition that existed prior to the event causing the expenditures, Operator shall either negotiate a rate prior to charging the Joint Account or shall charge the Joint Account for overhead based on the following rates:

- A. _____* % of total costs through \$100,000; plus
- B. _____* % of total costs in excess of \$100,000 but less than \$1,000,000; plus
- C. _____* % of total costs in excess of \$1,000,000.

*Prime Rate as shown by the Wall Street Journal on the day of the occurrence plus 2%. Expenditures subject to the overheads above will not be reduced by insurance recoveries, and no other overhead provisions of this Section III shall apply.

4. Amendment of Rates

The overhead rates provided for in this Section III may be amended from time to time only by mutual agreement between the Parties hereto if, in practice, the rates are found to be insufficient or excessive.

IV. PRICING OF JOINT ACCOUNT MATERIAL PURCHASES, TRANSFERS AND DISPOSITIONS

Operator is responsible for Joint Account Material and shall make proper and timely charges and credits for all Material movements affecting the Joint Property. Operator shall provide all Material for use on the Joint Property; however, at Operator's option, such Material may be supplied by the Non-Operator. Operator shall make timely disposition of idle and/or surplus Material, such disposal being made either through sale to Operator or Non-Operator, division in kind, or sale to outsiders. Operator may purchase, but shall be under no obligation to purchase, interest of Non-Operators in surplus condition A or B Material. The disposal of surplus Controllable Material not purchased by the Operator shall be agreed to by the Parties.

1. Purchases

Material purchased shall be charged at the price paid by Operator after deduction of all discounts received. In case of Material found to be defective or returned to vendor for any other reasons, credit shall be passed to the Joint Account when adjustment has been received by the Operator.

2. Transfers and Dispositions

Material furnished to the Joint Property and Material transferred from the Joint Property or disposed of by the Operator, unless otherwise agreed to by the Parties, shall be priced on the following basis exclusive of cash discounts:

A. New Material (Condition A)

(1) Tubular Goods Other than Line Pipe

- (a) Tubular goods, sized 2 $\frac{3}{8}$ inches OD and larger, except line pipe, shall be priced at Eastern mill published carload base prices effective as of date of movement plus transportation cost using the 80,000 pound carload weight basis to the railway receiving point nearest the Joint Property for which published rail rates for tubular goods exist. If the 80,000 pound rail rate is not offered, the 70,000 pound or 90,000 pound rail rate may be used. Freight charges for tubing will be calculated from Lorain, Ohio and casing from Youngstown, Ohio.
- (b) For grades which are special to one mill only, prices shall be computed at the mill base of that mill plus transportation cost from that mill to the railway receiving point nearest the Joint Property as provided above in Paragraph 2.A.(1)(a). For transportation cost from points other than Eastern mills, the 30,000 pound Oil Field Haulers Association interstate truck rate shall be used.
- (c) Special end finish tubular goods shall be priced at the lowest published out-of-stock price, f.o.b. Houston, Texas, plus transportation cost, using Oil Field Haulers Association interstate 30,000 pound truck rate, to the railway receiving point nearest the Joint Property.
- (d) Macaroni tubing (size less than 2 $\frac{3}{8}$ inch OD) shall be priced at the lowest published out-of-stock prices f.o.b. the supplier plus transportation costs, using the Oil Field Haulers Association interstate truck rate per weight of tubing transferred, to the railway receiving point nearest the Joint Property.

(2) Line Pipe

- (a) Line pipe movements (except size 24 inch OD and larger with walls $\frac{3}{4}$ inch and over) 30,000 pounds or more shall be priced under provisions of tubular goods pricing in Paragraph A.(1)(a) as provided above. Freight charges shall be calculated from Lorain, Ohio.
 - (b) Line pipe movements (except size 24 inch OD and larger with walls $\frac{3}{4}$ inch and over) less than 30,000 pounds shall be priced at Eastern mill published carload base prices effective as of date of shipment, plus 20 percent, plus transportation costs based on freight rates as set forth under provisions of tubular goods pricing in Paragraph A.(1)(a) as provided above. Freight charges shall be calculated from Lorain, Ohio.
 - (c) Line pipe 24 inch OD and over and $\frac{3}{4}$ inch wall and larger shall be priced f.o.b. the point of manufacture at current new published prices plus transportation cost to the railway receiving point nearest the Joint Property.
 - (d) Line pipe, including fabricated line pipe, drive pipe and conduit not listed on published price lists shall be priced at quoted prices plus freight to the railway receiving point nearest the Joint Property or at prices agreed to by the Parties.
- (3) Other Material shall be priced at the current new price, in effect at date of movement, as listed by a reliable supply store nearest the Joint Property, or point of manufacture, plus transportation costs, if applicable, to the railway receiving point nearest the Joint Property.
- (4) Unused new Material, except tubular goods, moved from the Joint Property shall be priced at the current new price, in effect on date of movement, as listed by a reliable supply store nearest the Joint Property, or point of manufacture, plus transportation costs, if applicable, to the railway receiving point nearest the Joint Property. Unused new tubulars will be priced as provided above in Paragraph 2 A (1) and (2).

B. Good Used Material (Condition B)

Material in sound and serviceable condition and suitable for reuse without reconditioning:

(1) Material moved to the Joint Property

At seventy-five percent (75%) of current new price, as determined by Paragraph A.

(2) Material used on and moved from the Joint Property

- (a) At seventy-five percent (75%) of current new price, as determined by Paragraph A, if Material was originally charged to the Joint Account as new Material or
- (b) At sixty-five percent (65%) of current new price, as determined by Paragraph A, if Material was originally charged to the Joint Account as used Material.

(3) Material not used on and moved from the Joint Property

At seventy-five percent (75%) of current new price as determined by Paragraph A.

The cost of reconditioning, if any, shall be absorbed by the transferring property.

C. Other Used Material

(1) Condition C

Material which is not in sound and serviceable condition and not suitable for its original function until after reconditioning shall be priced at fifty percent (50%) of current new price as determined by Paragraph A. The cost of reconditioning shall be charged to the receiving property, provided Condition C value plus cost of reconditioning does not exceed Condition B value.

(2) Condition D

Material, excluding junk, no longer suitable for its original purpose, but usable for some other purpose shall be priced on a basis commensurate with its use. Operator may dispose of Condition D Material under procedures normally used by Operator without prior approval of Non-Operators.

- (a) Casing, tubing, or drill pipe used as line pipe shall be priced as Grade A and B seamless line pipe of comparable size and weight. Used casing, tubing or drill pipe utilized as line pipe shall be priced at used line pipe prices.
- (b) Casing, tubing or drill pipe used as higher pressure service lines than standard line pipe, e.g. power oil lines, shall be priced under normal pricing procedures for casing, tubing, or drill pipe. Upset tubular goods shall be priced on a non upset basis.

(3) Condition E

Junk shall be priced at prevailing prices. Operator may dispose of Condition E Material under procedures normally utilized by Operator without prior approval of Non-Operators.

D. Obsolete Material

Material which is serviceable and usable for its original function but condition and/or value of such Material is not equivalent to that which would justify a price as provided above may be specially priced as agreed to by the Parties. Such price should result in the Joint Account being charged with the value of the service rendered by such Material.

E. Pricing Conditions

- (1) Loading or unloading costs may be charged to the Joint Account at the rate of twenty-five cents (25¢) per hundred weight on all tubular goods movements, in lieu of actual loading or unloading costs sustained at the stocking point. The above rate shall be adjusted as of the first day of April each year following January 1, 1985 by the same percentage increase or decrease used to adjust overhead rates in Section III, Paragraph 1.A(3). Each year, the rate calculated shall be rounded to the nearest cent and shall be the rate in effect until the first day of April next year. Such rate shall be published each year by the Council of Petroleum Accountants Societies.
- (2) Material involving erection costs shall be charged at applicable percentage of the current knocked-down price of new Material.

3. Premium Prices

Whenever Material is not readily obtainable at published or listed prices because of national emergencies, strikes or other unusual causes over which the Operator has no control, the Operator may charge the Joint Account for the required Material at the Operator's actual cost incurred in providing such Material, in making it suitable for use, and in moving it to the Joint Property; provided notice in writing is furnished to Non-Operators of the proposed charge prior to billing Non-Operators for such Material. Each Non-Operator shall have the right, by so electing and notifying Operator within ten days after receiving notice from Operator, to furnish in kind all or part of his share of such Material suitable for use and acceptable to Operator.

4. Warranty of Material Furnished By Operator

Operator does not warrant the Material furnished. In case of defective Material, credit shall not be passed to the Joint Account until adjustment has been received by Operator from the manufacturers or their agents.

V. INVENTORIES

The Operator shall maintain detailed records of Controllable Material.

1. Periodic Inventories, Notice and Representation

At reasonable intervals, inventories shall be taken by Operator of the Joint Account Controllable Material. Written notice of intention to take inventory shall be given by Operator at least thirty (30) days before any inventory is to begin so that Non-Operators may be represented when any inventory is taken. Failure of Non-Operators to be represented at an inventory shall bind Non-Operators to accept the inventory taken by Operator.

2. Reconciliation and Adjustment of Inventories

Adjustments to the Joint Account resulting from the reconciliation of a physical inventory shall be made within six months following the taking of the inventory. Inventory adjustments shall be made by Operator to the Joint Account for overages and shortages, but, Operator shall be held accountable only for shortages due to lack of reasonable diligence.

3. Special Inventories

Special inventories may be taken whenever there is any sale, change of interest, or change of Operator in the Joint Property. It shall be the duty of the party selling to notify all other Parties as quickly as possible after the transfer of interest takes place. In such cases, both the seller and the purchaser shall be governed by such inventory. In cases involving a change of Operator, all Parties shall be governed by such inventory.

4. Expense of Conducting Inventories

- A. The expense of conducting periodic inventories shall not be charged to the Joint Account unless agreed to by the Parties.
- B. The expense of conducting special inventories shall be charged to the Parties requesting such inventories, except inventories required due to change of Operator shall be charged to the Joint Account.

EXHIBIT "F"

I. EQUAL EMPLOYMENT OPPORTUNITY PROVISION

During the performance of this contract, the operator agrees as follows:

- (1) The Operator will not discriminate against any employee or applicant for employment because of race, color, religion, national origin or sex. The Operator will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, national origin or sex. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Operator agrees to post in conspicuous places, available to employees and applicants for employment notices to be provided for the contracting officer setting forth the provision of this non-discrimination clause.
- (2) The Operator will, in all solicitations or advertisements for employees placed by or on behalf of the Operator, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin or sex.
- (3) The Operator will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the Operator's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (4) The Operator will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (5) The Operator will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (6) In the event of the Operator's non-compliance with the non-discrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the Operator may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (7) The Operator will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Operator will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for non-compliance.

Provided however, that in the event the Operator becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Operator may request the United States to enter into such litigation to protect the interests of the United States.

Operator acknowledges that it may be required to file Standard Form 100 (EEO-1) promulgated jointly by the Office of Federal Contract Compliance, and Equal Employment Opportunity Commission and Plans for Progress with Joint Reporting Committee, Federal Depot, Jeffersonville, Indiana, within thirty (30) days of the date of contract award if such report has not been filed for the current year and otherwise comply with or file such other compliance reports as may be required under Executive Order 11246, as amended and Rules and Regulations adopted thereunder.

Operator further acknowledges that he may be required to develop a written affirmative action compliance program as required by the Rules and Regulations approved by the Secretary of Labor under authority of Executive Order 11246 and supply Non-Operators with a copy of such program if they so request.

II. CERTIFICATION OF NON-SEGREGATED FACILITIES

- (1) Operator assures Non-Operators that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. For this purpose, it is understood that the phrase "segregated facilities" includes facilities which are in fact segregated on a basis of race, color, religion or national origin, because of habit; local custom or otherwise. It is further understood and agreed that maintaining or providing segregated facilities for its employees or permitting its employees to perform their services at any location under its control where segregated facilities are maintained is a violation of the equal opportunity clause required by Executive Order 11246 of September 24, 1965.
- (2) Operator further understands and agrees that a breach of the assurance herein contained subjects it to the provisions of the Order at 41 CFR Chapter 60 of the Secretary of Labor dated May 21, 1968, and the provisions of the equal opportunity clause enumerated in contracts between the United States of America and Non-Operators.
- (3) Whoever knowingly and willfully makes any false, fictitious or fraudulent representation may be liable to criminal prosecution under 18 U.S.C. § 1001.

III. OCCUPATIONAL SAFETY AND HEALTH ACT

Operator will observe and comply with all safety and health standards promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Standards Act published in 29 CFR Part 1518 and adopted by the Secretary of Labor as occupational safety and health standards under the Williams-Steiger Occupational Safety and Health Act of 1970. Such safety and health standards shall apply to all subcontractors and their employees as well as to the prime contractor and its employees.

IV. VETERAN'S PREFERENCE

Operator agrees to comply with the following insofar as contracts it lets for an amount of \$10,000 or more which will generate 400 or more man-days of employment (each man-day consisting of any day in which an employee performs more than one hour of work) and further agrees to include the following provision in contracts with Contractors and Subcontractors:

"CONTRACTOR AND SUBCONTRACTOR LISTING REQUIREMENT

- (1) As provided by 41 CFR 50-250, the contractor agrees that all employment openings of the contractor which exist at the time of the execution of this contract and those which occur during the performance of this contract, including those now generated by the contract and including those occurring at an establishment of the contractor other than the one wherein the contract is being performed but excluding those of independently operated corporate affiliates, shall, to the maximum extent feasible, be offered for listing at an appropriate local office of the State employment service system wherein the opening occurs and to provide such periodic reports to such local office regarding employment openings and hires as may be required: Provided, that this provision shall not apply to

openings which the contractor fills from within the contractor's organization or are filled pursuant to a customary and traditional employer-union hiring arrangement and that listing of employment openings shall involve only the normal obligations which attach to the placing of job orders.

- (2) The contractor agrees to place the above provisions in any subcontract directly under this contract."

V. CERTIFICATION OF COMPLIANCE WITH ENVIRONMENTAL LAWS

Operator agrees to comply with the Clean Air Act (42 U.S.C. § 1857) and the Federal Water Pollution Control Act (33 U.S.C. § 1251) when conducting operations involving nonexempt contracts. In all nonexempt contracts with subcontractors, Operator shall require:

- (1) No facility to be utilized by Subcontractor in the performance of this contract with Operator is listed on the Environmental Protection Agency (EPA) List of Violating Facilities. See Executive Order No. 11738 of September 12, 1973, and 40 CFR § 15.20.
- (2) Prompt written notification shall be given by Subcontractor to Operator of any communication indicating that any such facility is under consideration to be included on the EPA List of Violating Facilities.
- (3) Subcontractor shall comply with all requirements of Section 114 of the Clean Air Act (42 U.S.C. § 1857) and Section 308 of the Federal Water Pollution Control Act (33 U.S.C. § 1251), relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in these Sections, and all regulations and guidelines issued thereunder.
- (4) The foregoing criteria and requirements shall be included in all of Subcontractor's nonexempt subcontracts, and Subcontractor shall take such action as the Government may direct as a means of enforcing such provisions. See 40 CFR § 15.4 & 5.
- (5) Operator agrees to notify non-operators of any violations in the afore provisions.

VI. Operator agrees to comply with Executive Orders 11458 and 11625 regarding Minority Business Enterprises and all orders, rules, and regulations issued thereunder or amendments thereto.

VII. Operator agrees to comply with Rehabilitation Act of 1973 and all orders, rules and regulations issued thereunder and amendments thereto.

EXHIBIT "G"

GAS BALANCING AGREEMENT

Attached to and made a part of Operating Agreement dated November 1, 1988 by and between Read & Stevens, Inc. as Operator, and NGC Energy Company, et al, as Non-Operators.

The parties to the Operating Agreement to which this Agreement is attached own the working interest in the gas rights underlying the Unit Area covered by such Agreement in accordance with the percentages of participation as set forth in Exhibit "A" to the Operating Agreement.

Each Party shall have the right to take in kind its share of the gas produced from the Unit Area. However, there may be periods when one or more of the parties have no market for, or its purchaser is unable to take, or for any other reason, it may not dispose of its interest, or a portion thereof, in the gas production. Therefore, to permit each Party to produce and dispose of its interest in the gas production from the Unit Area with as much flexibility as possible, the parties hereto agree to this Gas Balancing Agreement as hereinafter set forth:

1. DEFINITIONS:

For the purposes of this Agreement, the following terms shall be defined as hereafter set out:

- (a) "Operating Agreement" shall mean the Operating Agreement to which this Gas Balancing Agreement is attached.
- (b) "Gas" shall mean natural gas or oil well gas obtained from primary field separation.
- (c) "Liquid Hydrocarbons" are those liquids obtained from primary field separation.
- (d) "Percentage Ownership" is the percentage interest of each party as set forth in the Operating Agreement.
- (e) "Over-produced Party" is a party who has utilized or sold a greater volume of gas at any given time (individually or through its gas purchaser) than a volume determined by multiplying the total cumulative volume of gas produced and utilized or sold from a proration unit within the Unit Area by such Party's Percentage Ownership.
- (f) "Under-produced Party" is a party who has utilized or sold a lesser volume of gas at any given time (individually or through its gas purchaser) than a volume determined by multiplying the total cumulative volume of gas produced and utilized or sold from a proration unit within the Unit Area by such Party's Percentage Ownership.
- (g) "MER" is the total daily maximum efficient rate of hydrocarbon withdrawal from each separately produced proration unit, which, if exceeded for a sustained period of time, would lead to underground waste in the form of reduced ultimate recovery from the proration unit, after deducting the gas used in operations on the Unit Area or vented or lost.

2. OWNERSHIP OF PRODUCTION:

- (a) SALE BY LESS THAN ALL OWNERS: All gas produced from the Unit Area shall be produced and utilized or sold by those parties having a use or market for such gas. If fewer than all the parties are producing gas, the parties so producing shall have the right and option, but not the obligation, to produce and dispose of all or any part of such gas that may be produced up to the MER. The parties hereto shall share in and own the liquid hydrocarbons, as produced, in accordance with their respective interests, as set forth in and subject to the terms of the Operating Agreement. It is agreed that the gas attributable to the interest of each Under-produced Party shall remain in the reservoir for production at a later date.

(b) SALE BY UNDER-PRODUCED OWNERS: Each Under-produced Party shall, upon commencing the sale of gas, have the right to take a greater percentage of the current gas production than such Under-produced Party's Percentage Ownership, subject to the following limitations:

- (1) For the purposes of balancing gas production accounts, as soon as practical, any Over-produced Party or Parties will make available to any Under-produced Party or Parties a portion of the Over-produced Party's or Parties' share of gas production at the current MER, but Over-produced Parties shall not be liable to Under-produced Parties under this paragraph except as provided in Section 4 hereof. In no event will any Over-produced Party be required to reduce the volume of gas which it is entitled to take from a proration unit during any calendar month to less than 50% of such Over-produced Party's Percentage Ownership in the gas produced. If at any time more than one Under-produced Party is taking in excess of its percentage ownership in gas produced, then each such Under-produced Party shall be entitled to a share of the gas production made available by the Over-produced Parties in the ratio that the under-production of each Under-produced Party bears to the total under-production of all Under-produced Parties currently taking gas.
- (2) For the purpose of balancing in the event of price increases as provided in Section 3 hereof and for the purpose of balancing production accounts as provided in Section 4 hereof, the Under-produced Party, to the extent it is taking gas in excess of that attributable to its Percentage Ownership, shall be deemed to be recovering volumes of gas offsetting prior over-production by Over-produced Party on a last in, first out basis.
- (3) Each party's gas production account is in balance when such party has utilized or sold the same percentage of the total cumulative production from a proration unit as such party's Percentage Ownership.
- (4) It is contemplated that some of the parties may arrange to have their gas processed in a gas processing plant for the recovery of liquefiable hydrocarbons. This Gas Balancing Agreement shall not provide a basis for balancing any liquefiable hydrocarbons recovered from a gas processing plant.
- (5) Only produced gas actually utilized or sold by a party shall be owned by it and charged against its share of the total recoverable reserves.

3. BALANCING IN THE EVENT OF PRICE INCREASES:

In the event the price received by the Under-produced Party for gas otherwise attributable to the Over-produced Party's interest in gas production which is being delivered for the Under-produced Party's account is greater than the price received by the Over-produced Party for the equivalent volume of gas, then the Under-produced Party shall pay to the Over-produced Party in cash, on a monthly basis, the product of the volume of gas otherwise attributable to the Over-produced Party's interest in gas production which is being delivered for the Under-produced Party's account and the difference between the lawful price which the Under-produced Party currently is collecting for the gas described above (but in no event higher than the price received by the Over-produced Party at the time such production is sold by the Under-produced Party) and the lawful price which the Over-produced Party actually collected for the volume of gas described above.

4. BALANCING OF PRODUCTION ACCOUNTS:

When production from a proration unit permanently ceases, there shall be an accounting between the parties hereto so that any Under-produced Party shall receive a sum of money equal to the amount actually received, less applicable taxes, royalty, and the cost of dehydration and compression if not participated in by the Under-produced Party, by any Over-produced Party from the sale of that part of the total cumulative volume of gas produced from the proration unit to which any Under-produced Party was entitled, but which was utilized or sold by the Over-produced Parties. For the purposes of this paragraph, the "amount actually received" shall be the dollar

amount received for the quantity of gas remaining after subtracting the quantity of any periodic under-production by an Over-produced Party from the unbalanced over-production of such party. If a portion of a party's gas is taken for its own use and a portion thereof is sold, the gas value will be based on the price received simultaneously by such party for gas being sold from the proration unit. During periods in which a party is taking all of its gas for its own use, any gas so taken will be valued at the maximum price which such party could have received for such gas if actually delivered under such party's contract, or if none, the weighted average price received simultaneously by all parties for gas sold from the proration unit. If gas is processed for the recovery of liquefiable hydrocarbons, the gas value will be based on the amount which would have been received for the sale of such gas without processing.

5. STATEMENTS:

During the terms hereof, each party selling gas from a proration unit in any month will furnish or cause to be furnished to each of the other parties a statement showing the volume and value of gas utilized and the volume and proceeds if sold. The Operator under the Operating Agreement shall furnish monthly to each party a statement showing the status of the over and short accounts of all parties.

6. PRODUCTION TAXES:

Each Party taking gas shall pay any and all production taxes due on such gas.

7. PAYMENT OF ROYALTY:

At all times while gas is produced from the Unit Area, each party hereto shall make settlement with the respective royalty owners to whom they are each accountable, just as if each party were taking or delivering to its purchaser its share, and its share only, of the total gas production exclusive of gas used in lease operations, vented or lost. Each party hereto agrees to hold each other party harmless from any and all claims for royalty payments asserted by royalty owners to whom each party is accountable. The term "royalty owner" shall include owners of royalty, overriding royalties, production payments and similar interests.

8. OPERATING EXPENSES:

The operation expenses are to be borne as provided in the Operating Agreement, regardless of whether all parties are selling or using gas or whether the sales and use of each are in proportion to Percentage Ownership.

9. SCOPE AND TERM:

This Agreement shall constitute a separate agreement as to each well and as to each separately metered reservoir produced from each well within the Unit Area and shall become effective in accordance with its terms and shall remain in force and effect as long as the Operating Agreement to which it is attached remains in effect, and shall inure to the benefit of and be binding upon the parties hereto, their successors, legal representatives and assigns.

10. INDEMNITY:

Each party hereby indemnifies the other parties hereto against all liability for and agrees to defend the parties hereto against all claims which may be asserted by third parties who now or hereafter stand in a contractual relationship with such indemnifying party whenever such claims are based upon said contractual relationship and arise out of the operation of this Agreement or activities of any party under its provisions, and further agrees to save the other parties hereto harmless from all judgements or damages sustained and costs incurred in connection therewith.

11. OPERATOR'S LIABILITY:

The Operator under the Operating Agreement is authorized to carry out the provisions of this Agreement, but shall not be liable for its failure to do so as long as it acts in good faith and as would a reasonably prudent operator in the same or similar circumstances.

Serial through 4
Complete Set

CITY OF CARLSBAD
- WATER ANALYSIS REPORT -
CARLSBAD CITY LABORATORY
WASTEWATER TREATMENT PLANT
Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
WATER SOURCE Composite

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 0

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCo ₃	As CaCo ₃ GRAINS per Gallon
Alkalinity-M:		148	
Alkalinity-P:		0	
Calcium-Ca:	62	156	9.1
Magnesium-MG:	14	56	3.3
Sodium-Na:			
Sulphates-So ₄ :	46		
Chlorides-Cl:	62		
Sp. Cond.:	375		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.84		
PH: As received:	8.2		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCo ₃): . . .		212	12.4
TOTAL DISSOLVED SOILDS (As CaCo ₃):			

Jose A. Renteria
Exhibit "1" # 9607

CITY OF CARLSBAD
 - WATER ANALYSIS REPORT -
 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE Frontier #1

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 0

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCo ₃	As CaCo ₃ GRAINS per Gallon
Alkalinity-M:		152	
Alkalinity-P:		0	
Calcium-Ca:	53	132	7.7
Magnesium-MG:	11	44	2.6
Sodium-Na:			
Sulphates-So ₄ :	28		
Chlorides-Cl:	38		
Sp. Cond.:	345		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.73		
PH: As received:	8.0		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCo ₃): . . .		176	10.3
TOTAL DISSOLVED SOILDS (As CaCo ₃):			

 Jose A. Renteria

CITY OF CARLSBAD
 - WATER ANALYSIS REPORT -
 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE City 2

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 0

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCO ₃	As CaCO ₃ GRAINS per Gallon
Alkalinity-M:		148	
Alkalinity-P:		0	
Calcium-Ca:	56	140	8.2
Magnesium-MG:	18	72	4.2
Sodium-Na:			
Sulphates-So ₄ :	51		
Chlorides-Cl:	40		
Sp. Cond.:	360		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.84		
PH: As received:	8.0		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCO ₃):		212	12.4
TOTAL DISSOLVED SOILDS (As CaCO ₃):			

 Jose A. Renteria

CITY OF CARLSBAD
 - WATER ANALYSIS REPORT -
 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE Hudson 1

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 0

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCo ₃	As CaCo ₃ GRAINS per Gallon
Alkalinity-M:		152	
Alkalinity-P:		0	
Calcium-Ca:	62	156	9.1
Magnesium-MG:	16	64	3.7
Sodium-Na:			
Sulphates-So ₄ :	52		
Chlorides-Cl:	62		
Sp. Cond.:	400		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.90		
PH: As received:	8.0		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCo ₃):		220	12.8
TOTAL DISSOLVED SOILDS (As CaCo ₃):			

 Jose A. Renteria

CITY OF CARLSBAD
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 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE City 6

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 0

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCo ₃	As CaCo ₃ GRAINS per Gallon
Alkalinity-M:		148	
Alkalinity-P:		0	
Calcium-Ca:	56	140	8.2
Magnesium-MG:	15	60	3.5
Sodium-Na:			
Sulphates-So ₄ :	49		
Chlorides-Cl:	48		
Sp. Cond.:	370		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.84		
PH: As received:	8.1		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCo ₃):		200	11.7
TOTAL DISSOLVED SOILDS (As CaCo ₃):			

Jose A. Renteria

CITY OF CARLSBAD
 - WATER ANALYSIS REPORT -
 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE Caprock 19

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 0

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCo ₃	As CaCo ₃ GRAINS per Gallon
Alkalinity-M:		152	
Alkalinity-P:		0	
Calcium-Ca:	58	144	8.4
Magnesium-MG:	12	48	2.8
Sodium-Na:			
Sulphates-So ₄ :	44		
Chlorides-Cl:	44		
Sp. Cond.:	370		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.88		
PH: As received:	8.1		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCo ₃): . . .		192	11.2
TOTAL DISSOLVED SOILDS (As CaCo ₃):			

 Jose A. Renteria

CITY OF CARLSBAD
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 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE Caprock 17

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 0

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCo ₃	As CaCo ₃ GRAINS per Gallon
Alkalinity-M:		148	
Alkalinity-P:		0	
Calcium-Ca:	58	144	8.4
Magnesium-MG:	9	36	2.1
Sodium-Na:			
Sulphates-So ₄ :	58		
Chlorides-Cl:	44		
Sp. Cond.:	375		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.86		
PH: As received:	8.1		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCo ₃):		180	10.5
TOTAL DISSOLVED SOILDS (As CaCo ₃):			

 Jose A. Renteria

CITY OF CARLSBAD
 - WATER ANALYSIS REPORT -
 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE City 3

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 0

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCo ₃	As CaCo ₃ GRAINS per Gallon
Alkalinity-M:		148	
Alkalinity-P:		0	
Calcium-Ca:	58	144	8.4
Magnesium-MG:	11	44	2.6
Sodium-Na:			
Sulphates-So ₄ :	49		
Chlorides-Cl:	42		
Sp. Cond.:	375		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.84		
PH: As received:	8.1		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCo ₃): . . .		188	11.0
TOTAL DISSOLVED SOILDS (As CaCo ₃):			

Jose A. Renteria

CITY OF CARLSBAD
 - WATER ANALYSIS REPORT -
 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE Caprock 10

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 0

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCo ₃	As CaCo ₃ GRAINS per Gallon
Alkalinity-M:		152	
Alkalinity-P:		0	
Calcium-Ca:	61	152	8.9
Magnesium-MG:	10	40	2.3
Sodium-Na:			
Sulphates-So ₄ :	37		
Chlorides-Cl:	38		
Sp. Cond.:	355		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.68		
PH: As received:	8.0		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCo ₃): . . .		192	11.2
TOTAL DISSOLVED SOILDS (As CaCo ₃):			

 Jose A. Renteria

CITY OF CARLSBAD
 - WATER ANALYSIS REPORT -
 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE City 4

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 1

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCo ₃	As CaCo ₃ GRAINS per Gallon
Alkalinity-M:		156	
Alkalinity-P:		0	
Calcium-Ca:	59	148	8.7
Magnesium-MG:	10	40	2.3
Sodium-Na:			
Sulphates-So ₄ :	43		
Chlorides-Cl:	36		
Sp. Cond.:	360		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.70		
PH: As received:	8.1		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCo ₃): . . .		188	11.0
TOTAL DISSOLVED SOILDS (As CaCo ₃):			

Jose A. Renteria

CITY OF CARLSBAD
 - WATER ANALYSIS REPORT -
 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE Caprock 18

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 0

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCo ₃	As CaCo ₃ GRAINS per Gallon
Alkalinity-M:		144	
Alkalinity-P:		0	
Calcium-Ca:	62	156	9.1
Magnesium-MG:	9	36	2.1
Sodium-Na:			
Sulphates-So ₄ :	52		
Chlorides-Cl:	58		
Sp. Cond.:	390		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.86		
PH: As received:	8.0		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCo ₃): . . .		192	11.2
TOTAL DISSOLVED SOILDS (As CaCo ₃):			

 Jose A. Renteria

CITY OF CARLSBAD
 - WATER ANALYSIS REPORT -
 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE City 5

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 0

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCo ₃	As CaCo ₃ GRAINS per Gallon
Alkalinity-M:		144	
Alkalinity-P:		0	
Calcium-Ca:	62	156	9.1
Magnesium-MG:	15	60	3.5
Sodium-Na:			
Sulphates-So ₄ :	41		
Chlorides-Cl:	54		
Sp. Cond.:	370		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.79		
PH: As received:	8.0		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCo ₃): . . .		216	12.6
TOTAL DISSOLVED SOILDS (As CaCo ₃):			

Jose A. Renteria

CITY OF CARLSBAD
 - WATER ANALYSIS REPORT -
 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE Caprock 6

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 12

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCO ₃	As CaCO ₃ GRAINS per Gallon
Alkalinity-M:		152	
Alkalinity-P:		0	
Calcium-Ca:	85	212	12.4
Magnesium-MG:	15	60	3.5
Sodium-Na:			
Sulphates-So ₄ :	57		
Chlorides-Cl:	170		
Sp. Cond.:	600		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.76		
PH: As received:	7.8		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCO ₃):		272	15.9
TOTAL DISSOLVED SOILDS (As CaCO ₃):			

Jose A. Renteria

CITY OF CARLSBAD
 - WATER ANALYSIS REPORT -
 CARLSBAD CITY LABORATORY
 WASTEWATER TREATMENT PLANT
 Carlsbad, New Mexico 88220

SAMPLE SENT BY City of Carlsbad ANALYSIS NO. _____
 FROM Double Eagle Well Field SAMPLE RECEIVED Jan. 26, 1987
 ADDRESS _____ SAMPLE REPORTED Jan. 27, 1987
 WATER SOURCE Ambassador 1 *50*

PHYSICAL CHARACTERISTICS AS RECEIVED

Color _____ Odor _____ Turbidity 0

CHEMICAL CHARACTERISTICS

	PARTS per MILLION	PPM as CaCO ₃	As CaCO ₃ GRAINS per Gallon
Alkalinity-M:		156	
Alkalinity-P:		0	
Calcium-Ca:	93	232	13.6
Magnesium-MG:	17	68	4.0
Sodium-Na:			
Sulphates-So ₄ :	98		
Chlorides-Cl:	84		
Sp. Cond.:	470		
Iron-Fe:			
Free Chlorine:			
Fluoride:	0.79		
PH: As received:	7.9		
Aquapoise (PHs) at 70°F:			
TOTAL HARDNESS: (As CaCO ₃):		300	17.6
TOTAL DISSOLVED SOILDS (As CaCO ₃):			

Jose A. Renteria

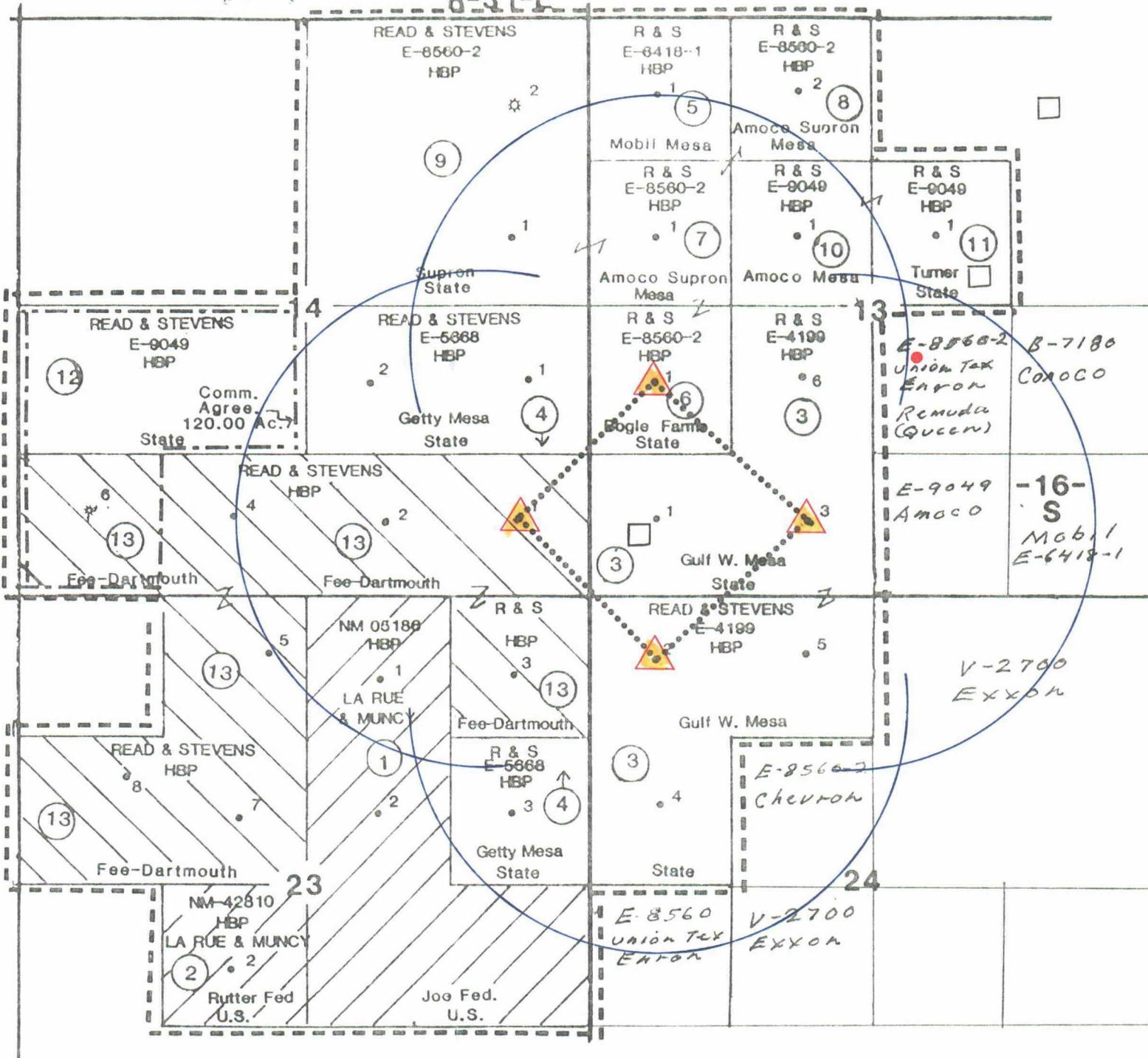
BEFORE EXAMINER STOGNER

Oil Conservation Division

Exhibit No. 1

Case No. 9607

B-31-E



LEGEND

- UNIT OUTLINE
- TRACT NUMBER
- STATE OF NEW MEXICO LANDS
840 ACRES
- ▨ FEE (PATENTED) LANDS
320 ACRES
- ▩ FEDERAL (U.S.) LANDS
200 ACRES

TOTAL UNIT AREA, 1,360 ACRES

EXHIBIT "2" #9607

BUNKER HILL UNIT AREA
 Parts Sections 13, 14, 23, 24,
 T-16-S, R-31-E, NMPM
 EDDY COUNTY, NEW MEXICO

- ▲ INJECTION WELL
- PILOT PROJECT
- DOUBLE EAGLE WATER WELL

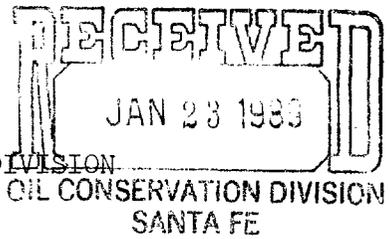
BEFORE EXAMINER STOGNER

Oil Conservation Division

Exhibit No. 2

Case No. 9607

Exhibit #2-A



BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION

APPLICATION OF READ & STEVENS, INC.
FOR AUTHORITY TO INSTITUTE A WATER
FLOOD PROJECT, EDDY COUNTY, NEW MEXICO

No. 9607

APPLICATION

Read & Stevens, Inc., P.O. Box 1518, Roswell, NM 88202, hereby applies to the New Mexico Oil Conservation Division for an order approving institution of a water flood project for secondary recovery of hydrocarbons in the proposed Bunker Hill Unit, Eddy County, New Mexico, and in support thereof, states:

1. Said water flood project and Unit is located in the most northeast township of Eddy County, New Mexico, 3/4 mile west of the Lea County Line, 2 1/2 miles south of the Chaves County Line, and approximately 5 miles north of U.S. Highway #82.

2. Attached hereto as Exhibits "B", "C", "D", "E", made a part hereof in compliance with Division Rule 701.B.1., are Division forms C-108 for each of the four (4) oil wells Applicant proposes to convert to water injection wells, as more specifically identified below.

3. Read & Stevens, Inc., in an accompanying Application, has requested Division approval of Statutory Unitization and a unit for the proposed Bunker Hill Unit in Eddy County, New Mexico. The Unit Area, Unitized Formation, Unit Agreement, and Unit Operating Agreement are described in said Application.

4. Read & Stevens, Inc. proposes to institute a water flood project for the secondary recovery of oil and gas from the Unitized Formation (Penrose Sand) within the Unit Area.

5. Following approval of the Bunker Hill Unit by the Oil Conservation Division, the Commissioner of Public Lands and the Bureau of Land Management, Read & Stevens, Inc. proposes to institute a "Pilot Project" within the Unit Area by converting the following four (4) wells into injection wells, to wit: (All lands are within T-16-S, R-31-E, NMPM)

- (1.) Read & Stevens, Inc., Bogle Farms #1, located in Unit "L", Sec.13; (Exhibit "B")
- (2.) Read & Stevens, Inc., Dartmouth #1, located in Unit "P", Sec. 14; (Exhibit "C")
- (3.) Read & Stevens, Inc., Gulf West Mesa #2, located in Unit "D", Sec. 24; (Exhibit "D")

- (4.) Read & Stevens, Inc., Gulf West Mesa #3, located in Unit "N",
Sec. 13: (Exhibit "E")

The Read & Stevens, Inc. Gulf West Mesa #1, located in Unit "M",
Sec. 13, is to be the producing well for this pilot project.

Attached hereto as Exhibit "A" is a plat of the Unit Area, showing the
four (4) wells to be converted into injection wells.

6. The Read & Stevens, Inc., Gulf West Mesa #3 well (Unit "N", Sec. 13)
will be converted to an injection well as the first step in institution of
this pilot project. Said well will be monitored for a short period of time
to determine formation reaction to water injection before converting the
remaining three (3) pilot wells to injection.

7. The initial injection rate will be approximately 140 barrels of
water per well per day; total of 560 barrels per day for the pilot project.

8. Water is to be injected at a surface pressure not to exceed 0.2 psi
per foot of depth to top of injection zone, provided, however, that surface
pressure in excess of 0.2 psi per foot of depth to injection zone may be
applied upon administrative approval as provided by Oil Conservation Division
rules and regulations.

9. The water to be injected and used in this water flood has been
purchased from the City of Carlsbad out of their Double Eagle Water System.
Said water system, and pipelines in connection therewith, cross, and are
located upon, the Unit Area. No additional water supply lines are con-
templated on lands outside the Unit Area. Attached hereto is Exhibit "F",
Plat, showing the Double Eagle Water System and this Bunker Hill Unit Area.

10. It is expected that approximately one (1) year will be needed to
study the pilot project and determine the feasibility of converting the
remaining injection wells within the Unit Area and proceeding to full
unit-wide water flooding. Applicant proposes, and so requests, that con-
version of additional wells for injection purposes, and the injection of
water therein, be approved by the Division by Administrative Approval as
provided for in the rules and regulations of the Division.

11. Approval of this water flood project, and initial pilot project in
connection therewith, will substantially increase recoverable reserves of
oil to be produced, waste will be prevented and correlative rights of all
parties will be protected..

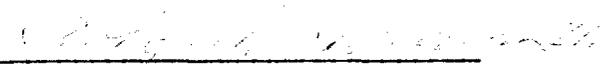
12. Applicant has furnished, by Certified Mail, a copy of this Application, with Exhibits, to each Leasehold Operator within one-half mile of each proposed injection well and to the owner or grazing lessee of the surface upon which each injection well is located. Proof of same to be furnished at the time this case is heard.

NOW THEREFORE, applicant, Read & Stevens, Inc., respectfully requests that this Application be set for hearing on February 15, 1989, and that the Division enter its order approving this water flood project and the injection of water into the Penrose Sand through the four (4) above identified pilot injection wells.

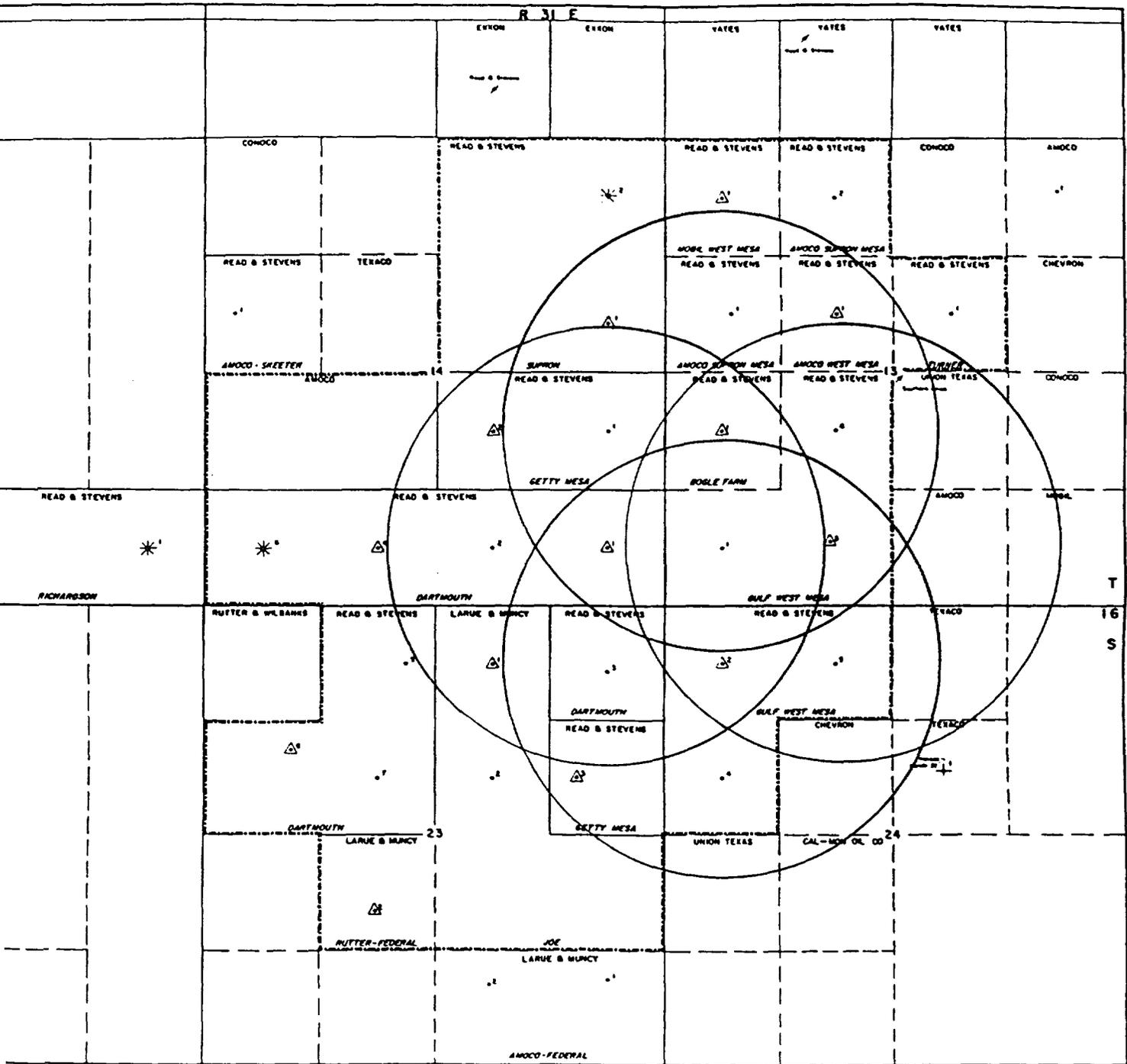
Dated this 17th day of January, 1989.

READ & STEVENS, INC.

by



Randolph M. Richardson, III
Attorney-at-law
P.O. Box 2423
Roswell, NM 88202-2423



-LEGEND-

- PRODUCING OIL WELL
- △ PRODUCING GAS WELL
- WATER INJECTION WELL (IMPROVED)
- ⊕ PLUGGED & ABANDONED WELL
- DRY HOLE
- LOCATION

PRELIMINARY WATERFLOOD SURVEY

READ & STEVENS, INC.
 BUNKER HILL FIELD
 PENROSE FORMATION
 1887 COUNTY NEW MEXICO

BASE MAP

-SCALE-



APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: Secondary Recovery Pressure Maintenance Disposal Storage
Application qualifies for administrative approval? yes no
- II. Operator: Read & Stevens, Inc.
Address: P.O. Box 1518, Roswell, NM 88202
Contact party: John Maxey Phone: 505/622-3770
- III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? yes no
If yes, give the Division order number authorizing the project _____.
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- * VI. * Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- *VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- * X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)
- * XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification
- I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- Name: John C. Maxey, Jr. Title Petroleum Engineer
Signature: *John C. Maxey, Jr.* Date: 1-20-88
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

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The proposed average and maximum daily rates are 140 bpd and 230 bpd respectively and the total volume of fluids injected shall be 5,150,000 barrels of water.

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This is a closed system.

Item 3

The proposed average and maximum injection pressures are 100 psig and 710 psig respectively.

Item 4

See the water analysis attached.

Item 5

Not applicable.

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The injection zone is a permian age sandstone of the Guadalupe series known as the Penrose Sand. It is found at an average sub-surface depth of approximately 3550 in the project area and is approximately 25 feet thick.

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IX.

No stimulation planned.

X.

All logs have previously been filed with the Division.

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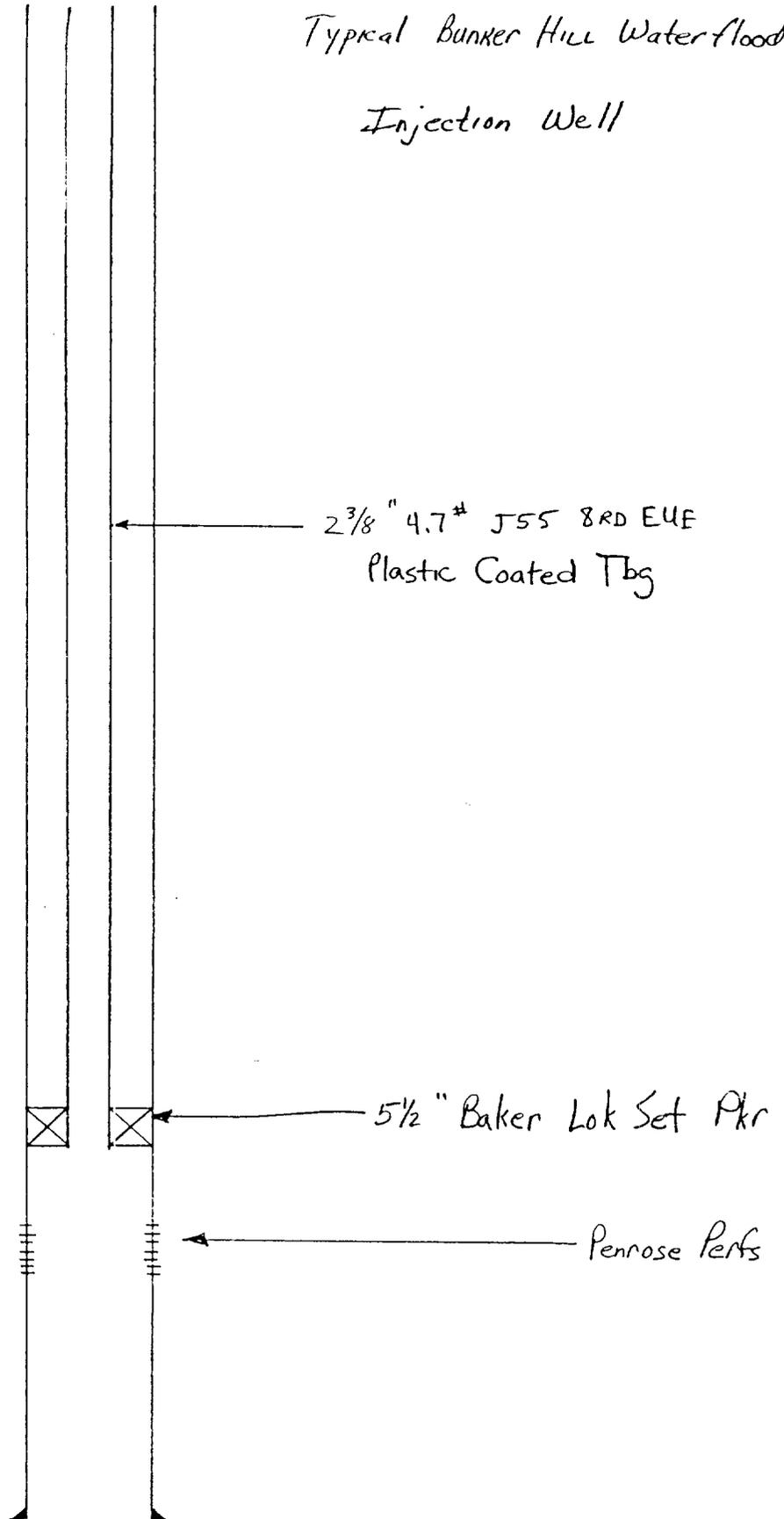
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Read & Stevens, Inc., has examined available geologic and engineering data and finds no evidence of open faults or any other hydrologic connection between the injection zone and any underground source of drinking water.

Typical Bunker Hill Waterflood

Injection Well



Information regarding the four proposed pilot injectors
in the Read & Stevens Bunker Hill Water Flood program.

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Contact party: John Maxey Phone: 505/622-3770
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- IV. Is this an expansion of an existing project? yes no
If yes, give the Division order number authorizing the project _____
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- XIV. Certification

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: John C. Maxey, Jr. Title Petroleum Engineer

Signature: *John C. Maxey, Jr.* Date: 1-20-88

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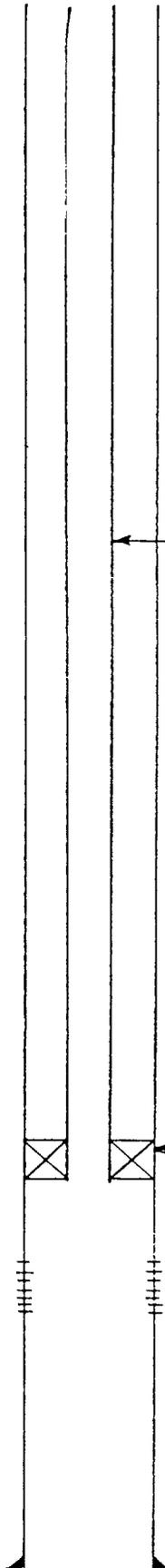
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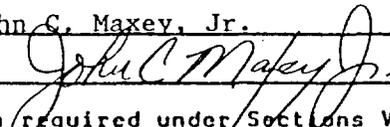
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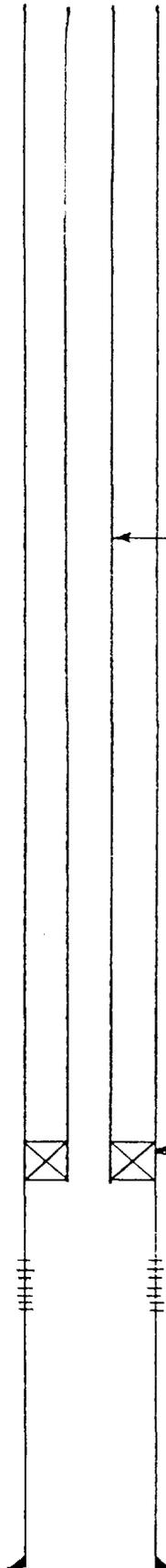
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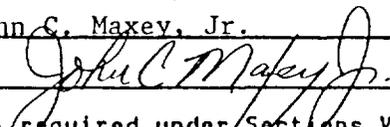
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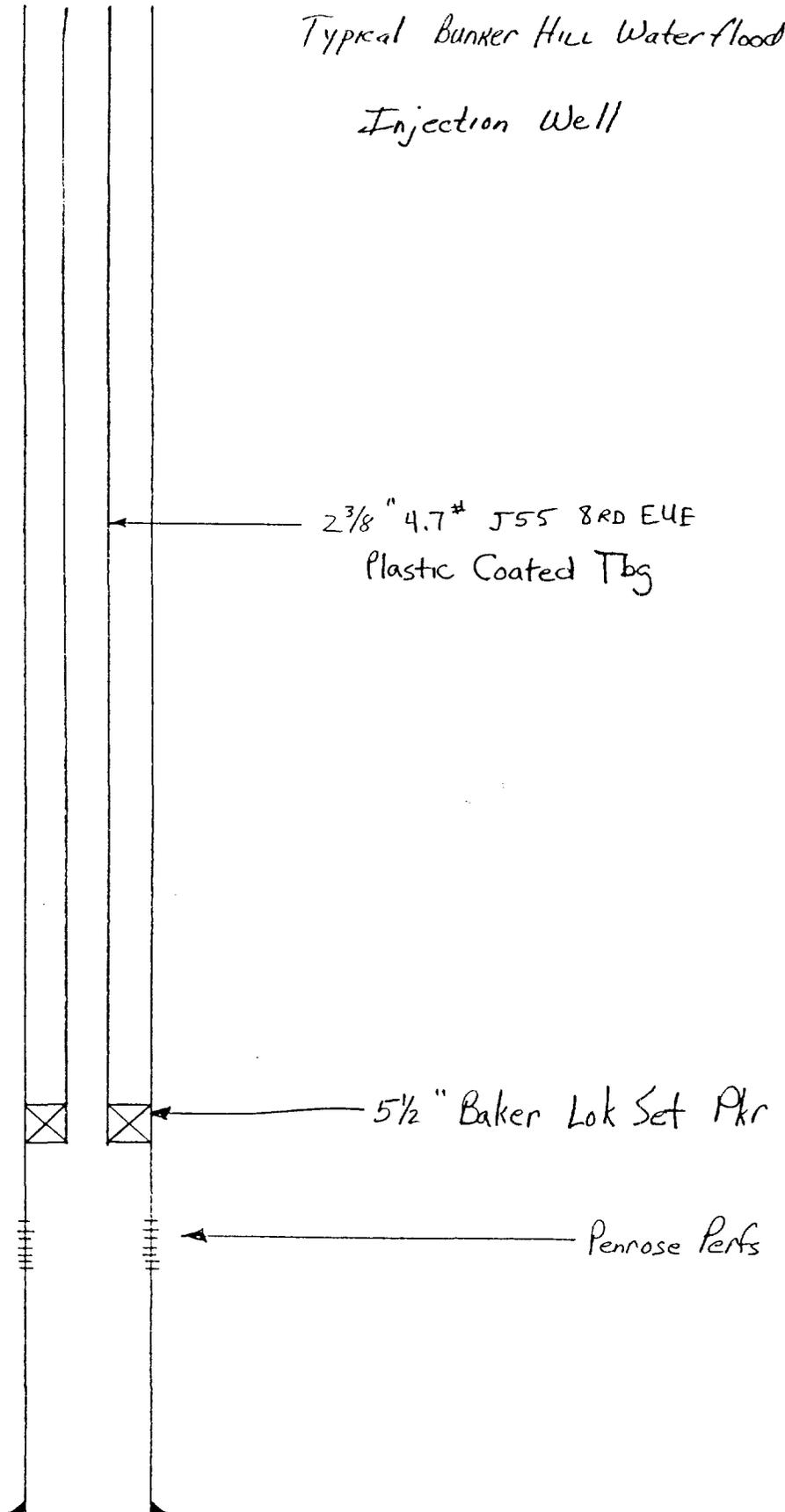
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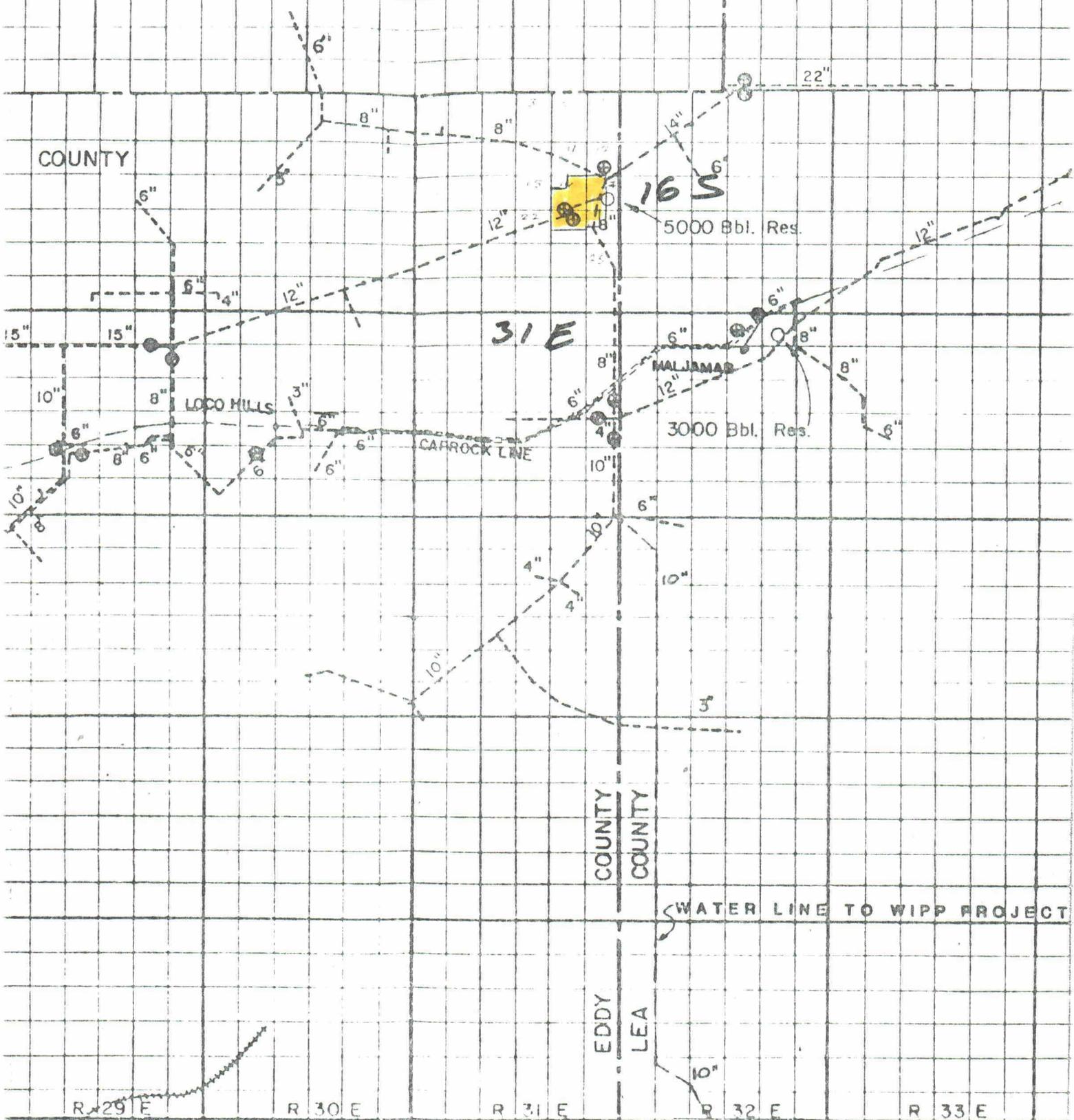
Read & Stevens, Inc., has examined available geologic and engineering data and finds no evidence of open faults or any other hydrologic connection between the injection zone and any underground source of drinking water.

Information regarding the four proposed pilot injectors
in the Read & Stevens Bunker Hill Water Flood program.

WELL & LOCATION	CASING & CMT	PENROSE PERFS	2 3/8" PLASTIC COATED TBG W/BAKER LOK-SET PKR SETTING DEPTH.	OTHER PERFS
Gulf West Mesa #2 660' FNL & 660' FWL 24-16S-31E	8 5/8" @ 1,250' cmt 550 sx to surf 4 1/2" @ 4,242' cmt w/775 sx cmt TOC @ 2,500' calc	3,600'-3,622'	100' above perfs	4,053'-4,059' Penrose w/11 plug w/CIBP & cmt.
Gulf West Mesa #3 730' FSL & 1910' FWL 13-16S-31E	8 5/8" @ 1,272' cmt 500 sx to surf 4 1/2" @ 4,248' cmt w/625 sx cmt TOC @ 3,000' calc	3,623'-3,647'	100' above perfs	
Bogle Farms #1 660' FWL & 1980' FSL 16-16S-31E	12 3/4" @ 340' cmt w/350 sx to surf 4 1/2" @ 3,704' cmt w/200 sx TOC @ 2,910' by temp survey	3,605'-3,629'	100' above perfs	3,332'-3,343' Queen w/11 squeeze cmt.
Dartmouth #1 660' FSL & 660' FEL 14-16S-31E	8 5/8" @ 1,236' cmt 550 sx to surf 4 1/2" @ 4,250' cmt w/600 sx cmt TOC @ 3,000' by log	3,602'-3,622'	100' above perfs	

DEES COUNTY LEA COUNTY

COUNTY



S.F. ROAD

City of Carlsbad
Eddy County New Mexico
DOUBLE EAGLE WATER SYSTEM

MOLZEN-CORBIN & Associates
Consulting Engineers

Exhibit "F"

Prepared by
MIDLAND MAP COMPANY
106 N. Maricfield
P. O. Box 1229 • Ph. 682-1603
Midland, Texas 79701

STATE OF NEW MEXICO ↓
↓
COUNTY OF CHAVES ↓

AFFIDAVIT

Before me the undersigned authority on this 10th day of February, 1989, personally appeared Randolph M. Richardson, known to me to be a credible person, who did depose and state:

That he was employed by Read & Stevens, Inc. to aid in the formation of the Bunker Hill Unit, Eddy County, New Mexico, and to aid in obtaining Oil Conservation Division authority to inject water and institute a waterflood project within said Bunker Hill Unit.

That pursuant to Oil Conservation Division Rules 701.B.2. and 1207, copy of Application for Authority to Institute a Waterflood Project was mailed, (by certified mail, return receipt requested), along with attached Division Form C-108, to the surface owner of each injection well and to the leasehold operator of all leases within one-half mile of each injection well, as follows:

<u>Operator and Address</u>	<u>Description of Lease</u>
	<u>T-16-S, R-31-E, NMPM</u>
Union Texas Exploration * P.O. Box 2120 Houston, Texas 77252-2120	Sec. 13; NW/4 SE/4 Sec. 24; NW/4 SW/4
Enron Oil & Gas Co. * P.O. Box 2267 Midland, TX 79702	Sec. 13; NW/4 SE/4 Sec. 24; NW/4 SW/4
*Undivided 1/2 each	
Mobil Producing, Texas & New Mexico P.O. Box 633 Midland, TX 79702	Sec. 13; SE/4 SE/4
Conoco, Inc. P.O. Box 1959 Midland, TX 79702	Sec. 13; NE/4 SE/4
Amoco Production Co. P.O. Box 3092 Houston, TX 77253	Sec. 13; SW/4 SE/4
Exxon Corporation P.O. Box 1600 Midland, TX 79702	Sec. 24; NE/4, E/2 SW/4
Chevron USA P.O. Box 1150 Midland, TX 79702	Sec. 24, SE/4 NW/4
LaRue and Muncy P.O. Box 196 Artesia, NM 88210	Sec. 23; W/2 NE/4
Remuda Operating Co. * 301 No. Colorado, Ste. 150 Midland, TX 79701	Sec. 13; NW/4 SE/4 *

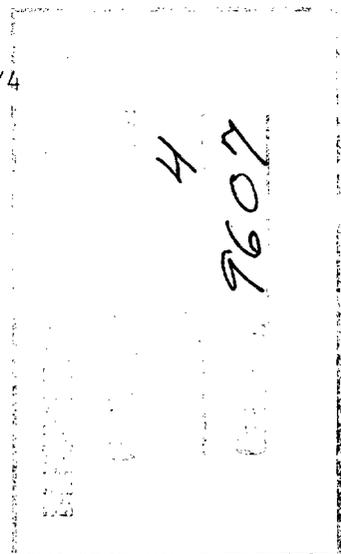
*Operator of Queen Well under Union Texas and Enron Lease.

Surface Owner - 4 Injection Wells

Bogle Farms, Inc. ** P.O. Box 358 Dexter, NM 88230	Sec. 13; SE/4 SW/4 Sec. 13; NW/4 SW/4 Sec. 14; SE/4 SE/4 Sec. 24; NW/4 NW/4
--	--

**Bogle Farms owns fee surface on SE/4 SE/4 Sec. 14, and is State Grazing Lessee on lands in Sec. 13 and 24, locations of all four injection wells.

Notice of hearing was also mailed, by certified mail, return receipt requested, to the Bureau of Land Management, P.O. Box 1397, Roswell, NM 88202-1397.



That there are other wells within one or more one-half mile circles around each injection well, but such wells are operated by applicant, Read & Stevens, Inc., and are located within the Unit Area. Applicant for Authority to Institute a Waterflood Project was not mailed Notice of Hearing.

That attached hereto and marked Exhibit "A" is plat of Unit Area showing one-half mile circles around each injection well, together with name of leasehold operator, as above stated.

That attached hereto and marked Exhibit "B" is copy of each return receipt evidencing that the above named leasehold operators and surface owner/lessee did receive notice of the Application as well as Notice of Hearing.

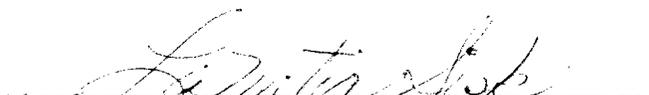
Further, affiant sayeth not.


Randolph M. Richardson

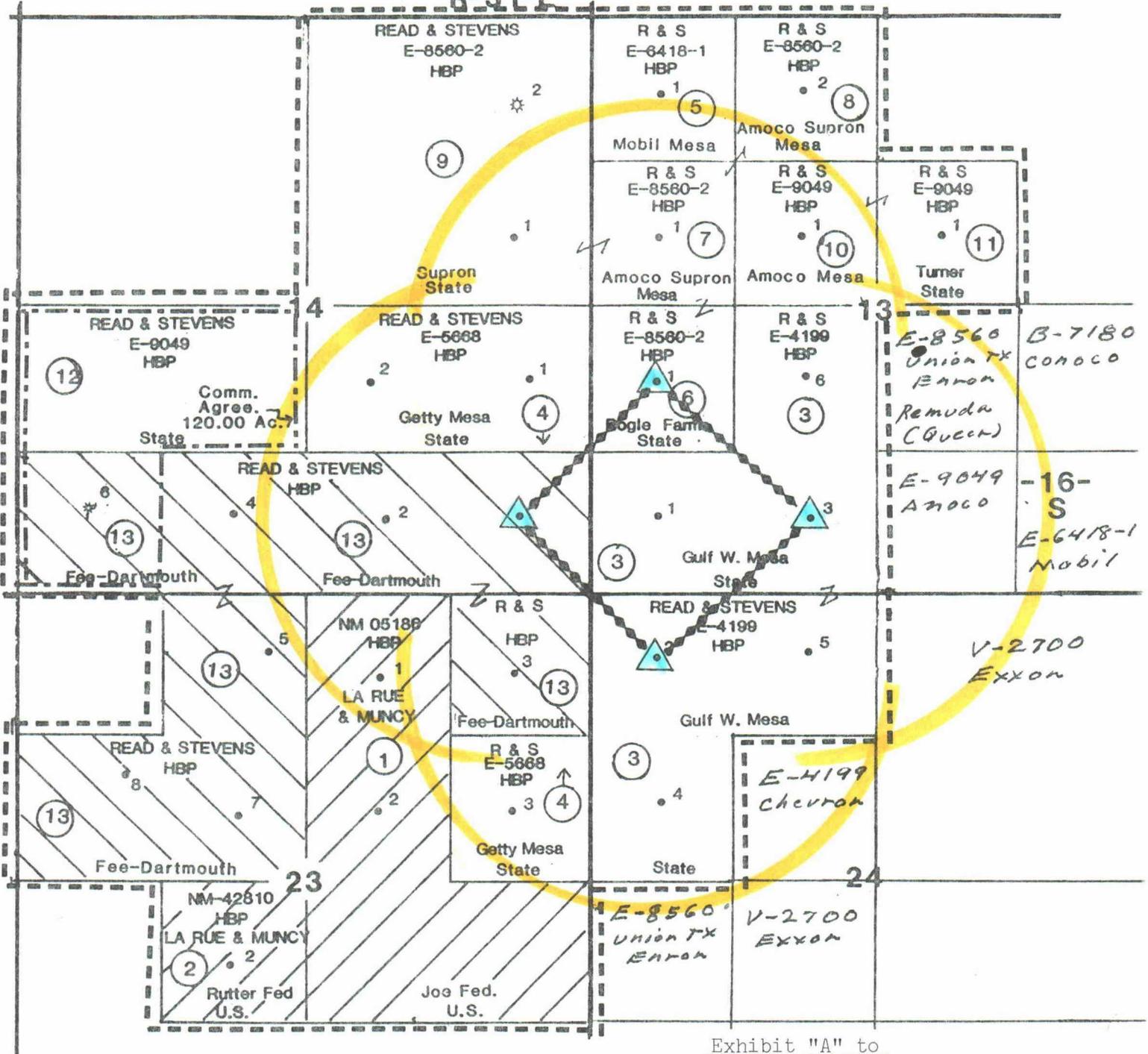
State of New Mexico |
 |
County of Chaves |

The foregoing was subscribed and sworn to by Randolph M. Richardson, this 10th day of February, 1989.

My Commission Expires:
11/30/92


Notary Public

R-31-E



LEGEND

- UNIT OUTLINE
- TRACT NUMBER
- STATE OF NEW MEXICO LANDS
840 ACRES
- ▨ FEE (PATENTED) LANDS
320 ACRES
- ▨ FEDERAL (U.S.) LANDS
200 ACRES

TOTAL UNIT AREA, 1,360 ACRES

- ▲ Injection Well
- ◆◆◆ Pilot Project

Exhibit "A" to
Affidavit of R. M. Richardson

BUNKER HILL UNIT AREA
Parts Sections 13, 14, 23, 24,
T-16-S, R-31-E, NMPM
EDDY COUNTY, NEW MEXICO

<p>SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.</p> <p>Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check boxes) for additional service(s) requested.</p> <p>1. <input type="checkbox"/> Show to whom delivered, date, and addressee's address. 2. <input type="checkbox"/> Restricted Delivery (Extra charge)</p>	
3. Article Addressed to:	4. Article Number
Union Texas Exploration Corp. P.O. Box 2120 Houston, TX 77252-2120	P-907-214-270
5. Signature - Address	Type of Service: <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
X	Always obtain signature of addressee or agent and DATE DELIVERED.
8. Signature - Agent	8. Addressee's Address (ONLY if requested and fee paid)
X <i>[Signature]</i>	
7. Date of Delivery	
JAN 30 1988	
PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT	

<p>SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.</p> <p>Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check boxes) for additional service(s) requested.</p> <p>1. <input type="checkbox"/> Show to whom delivered, date, and addressee's address. 2. <input type="checkbox"/> Restricted Delivery (Extra charge)</p>	
3. Article Addressed to:	4. Article Number
Conoco, Inc. P.O. Box 1959 Midland, TX 79702	P-907-214-273
5. Signature - Address	Type of Service: <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
X	Always obtain signature of addressee or agent and DATE DELIVERED.
8. Signature - Agent	8. Addressee's Address (ONLY if requested and fee paid)
X <i>[Signature]</i>	
7. Date of Delivery	
JAN 29 1988	
PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT	

Exhibit "B" to Affidavit of R. M. Richardson

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check boxes for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. 2. Restricted Delivery (Extra charge)

3. Article Addressed to: Amoco Production Co.
P.O. Box 3092
Houston, TX 77253

4. Article Number: P-907-214-274

Type of Service: Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature - Address: [Signature]

6. Signature - Agent: [Signature]

7. Date of Delivery: JAN 29 1989

8. Addressee's Address (ONLY if requested and fee paid)

3. Article Addressed to: Exxon Corporation
P.O. Box 1600
Midland, TX 79702

4. Article Number: P-907-214-275

Type of Service: Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature - Address: [Signature]

6. Signature - Agent: [Signature]

7. Date of Delivery: JAN 29 1989

8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check boxes for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. 2. Restricted Delivery (Extra charge)

3. Article Addressed to: Chevron, USA
P.O. Box 1150
Midland, TX 79702

4. Article Number: P-907-214-276

Type of Service: Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature - Address: [Signature]

6. Signature - Agent: [Signature]

7. Date of Delivery: JAN 29 1989

8. Addressee's Address (ONLY if requested and fee paid)

3. Article Addressed to: Larue & Muncy
P.O. Box 196
Artesia, NM 88210

4. Article Number: P-907-214-277

Type of Service: Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature - Address: [Signature]

6. Signature - Agent: [Signature]

7. Date of Delivery: JAN 29 1989

8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. (Extra charge) 2. Restricted Delivery (Extra charge)

3. Article Addressed to: Mr. Tom Aylesworth Remuda Operating Co. 301 No. Colorado, Suite 150 Midland, Texas 79701	4. Article Number P-907-214-279
	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
	Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature - Address X	8. Addressee's Address (ONLY if requested and fee paid)
6. Signature - Agent X <i>Quincy J. Jemph</i>	
7. Date of Delivery 3-1-89	

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. (Extra charge) 2. Restricted Delivery (Extra charge)

3. Article Addressed to: Mr. Bill Bogle Bogle Farms, Inc. P.O. Box 358 Dexter, NM 88230	4. Article Number P-907-214-278
	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
	Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature - Address X <i>A. Sales</i>	8. Addressee's Address (ONLY if requested and fee paid)
6. Signature - Agent X	
7. Date of Delivery 1-26-89 <i>me</i>	

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. (Extra charge) 2. Restricted Delivery (Extra charge)

3. Article Addressed to: Mr. Joe Lara Bureau of Land Management P. O. Box 1397 Roswell, New Mexico 88202-1397	4. Article Number P-913-032-588
	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
	Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature - Address X	8. Addressee's Address (ONLY if requested and fee paid)
6. Signature - Agent X <i>Tommy - [unclear]</i>	
7. Date of Delivery 2-3-89	

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

RECEIVED BY
 NOV -6 1986
 O. C. D.
 ARTESIA, OFFICE

2A
 9657

Form C-104
 Revised 10-01-78
 Format 06-01-83
 Page 1

STATE OF NEW MEXICO
 ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
 P. O. BOX 2088
 SANTA FE, NEW MEXICO 87501

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PRORATION OFFICE	

REQUEST FOR ALLOWABLE
 AND
 AUTHORIZATION TO TRANSPORT OIL AND NATURAL GAS

I. Operator
 Remuda Operating Company ✓

Address
 301 N. Colorado, Suite 150, Midland, Tx. 79701

Reason(s) for filing (Check proper box)

<input type="checkbox"/> New Well	Change in Transporter of:	<input type="checkbox"/> Dry Gas
<input type="checkbox"/> Recompletion	<input type="checkbox"/> Oil	<input type="checkbox"/> Condensate
<input checked="" type="checkbox"/> Change in Ownership	<input type="checkbox"/> Casinghead Gas	

Other (Please explain)

If change of ownership give name and address of previous owner: Remuda Oil & Gas Corporation, 150 Mid America Bldg., Midland, Tx. 79701

II. DESCRIPTION OF WELL AND LEASE

Lease Name Southern Union State	Well No. 1	Pool Name, including Formation Mesa Queen Assoc.	Kind of Lease State, Federal or Fee State	Lease No. E 8560
Location				
Unit Letter J	2310	Feet From The South	Line and 2310	Feet From The East
Line of Section 13	Township 16 S	Range 31 E	, NMPM, Eddy County	

III. DESIGNATION OF TRANSPORTER OF OIL AND NATURAL GAS

Name of Authorized Transporter of Oil <input type="checkbox"/> or Condensate <input type="checkbox"/>	Address (Give address to which approved copy of this form is to be sent)
Name of Authorized Transporter of Casinghead Gas <input type="checkbox"/> or Dry Gas <input checked="" type="checkbox"/>	Address (Give address to which approved copy of this form is to be sent)
Phillips Petroleum CO.	Bartlesville, Oklahoma
If well produces oil or liquids, give location of tanks.	Is gas actually connected? When
	Yes 5-2-67

*Part IO-3
4-24-87
shy of name*

If this production is commingled with that from any other lease or pool, give commingling order number:

NOTE: Complete Parts IV and V on reverse side if necessary.

VI. CERTIFICATE OF COMPLIANCE

I hereby certify that the rules and regulations of the Oil Conservation Division have been complied with and that the information given is true and complete to the best of my knowledge and belief.

Neil Lusk
 (Signature)

Agent
 (Title)

11/05/86
 (Date)

OIL CONSERVATION DIVISION

APPROVED APR 23 1987, 19
 BY Original Signed By
Les A. Clements
 TITLE Supervisor District II

This form is to be filed in compliance with RULE 1104.
 If this is a request for allowable for a newly drilled or deepened well, this form must be accompanied by a tabulation of the deviation tests taken on the well in accordance with RULE 111.
 All sections of this form must be filled out completely for allowable on new and recompleted wells.
 Fill out only Sections I, II, III, and VI for changes of owner, well name or number, or transporter, or other such change of condition.
 Separate Forms C-104 must be filed for each pool in multiply completed wells.

NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS

C-116
Revised 1-1-65

Operator		Pool		County										
Remuda Operating Company ✓		Mesa Queen, Associated		Lea and Eddy										
Address		TYPE OF TEST - (X)		Completion <input type="checkbox"/> Special <input type="checkbox"/>										
150 Mid America Bldg.		Scheduled <input checked="" type="checkbox"/>												
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU.FT./BBL	
		U	S	T						R	WATER BBL.S.	GRAV. OIL		OIL BBL.S.
Mobil 7 State	1	E	7	165	32E	9-20-85	F	1.00	290	24	-	-	100	
Pan American 13	1	A	13	165	31E	9-21-85	F	1.25	300	24	-	-	150	
Southern Union ✓	1	J	13	165	31E	9-20-85	F	.375	75	24	-	-		

RECEIVED BY
DEC 16 1985
O. C. D.
ARTESIA, OFFICE

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

No well will be assigned an allowable greater than the amount of oil produced on the official test.
During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.
Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.
Report casing pressure in lieu of tubing pressure for any well producing through casing.
Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

Neil Fisher
(Signature)
12/10/85
(Title)

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D OFFICE	
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RECEIVED
NEW MEXICO OIL CONSERVATION COMMISSION

Form C-103
Supersedes Old
C-102 and C-103
Effective 1-1-65

MAR 17 1982

O. C. D.
ARTESIA, OFFICE

5a. Indicate Type of Lease	
State <input checked="" type="checkbox"/>	Fee <input type="checkbox"/>
5. State Oil & Gas Lease No. E 8560	
7. Unit Agreement Name	
8. Farm or Lease Name Southern Union,	
9. Well No. <i>St. Com.</i> -1-	
10. Field and Pool, or Wildcat Mesa Queen	
12. County Eddy	

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT..." (FORM C-101) FOR SUCH PROPOSALS.)

WELL GAS WELL OTHER

Name of Operator
REMUDA OIL & GAS CORP. /

Address of Operator
150 Mid-America Bldg., Midland, Texas 79701

Location of Well
UNIT LETTER J 2,310 FEET FROM THE South LINE AND 2,310 FEET FROM
THE East LINE, SECTION 13 TOWNSHIP 16-S RANGE 31-E NMPM.

15. Elevation (Show whether DF, RT, GR, etc.)

4387' GL

Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

FORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input checked="" type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
OR ALTER CASING <input type="checkbox"/>	OTHER <input type="checkbox"/>	CASING TEST AND CEMENT JOB <input type="checkbox"/>	

Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

Pull 4-1/2" casing; spot 20 Sx. plug at TD* + Tag
3430
Spot plug 35 Sx. plug at cut-off point.
100' plug at 2,150' - 2,250', 100' plug at
1,200' - 1,300'. 50 Sx. plug at 8-5/8" casing
set to 433', 10 Sx. plug at top.

Install marker and clean up location.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

BY Neil Jensen TITLE Agent DATE March 16, 1982

APPROVED BY Mike Walker TITLE OIL AND GAS INSPECTOR DATE MAR 23 1982

CONDITIONS OF APPROVAL, IF ANY: * As Noted Above

Notify N.M.O.C.C. in sufficient time to witness

Plugging

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	GAS
OPERATOR	3
PRORATION OFFICE	

NEW MEXICO OIL CONSERVATION COMMISSION
 REQUEST FOR ALLOWABLE
 AND
 AUTHORIZATION TO TRANSPORT OIL AND NATURAL GAS

Form C-104
 Supersedes Old C-104 and C-110
 Effective 1-1-65

SEP 27 1971

I. OPERATOR

Operator **REMUDA OIL & GAS COMPANY** ✓ **O. C. C. ARTESIA, OFFICE**

Address **150 Mid-America Bldg., Midland, Texas 79701**

Reason(s) for filing (Check proper box)

New Well Change in Transporter of: Oil Dry Gas Other (Please explain)

Recompletion Casinghead Gas Condensate

Change in Ownership

If change of ownership give name and address of previous owner **Robert A. Dean, 823 Midland Tower, Midland, Texas 79701**

II. DESCRIPTION OF WELL AND LEASE

Lease Name Southern Union State	Well No. 1	Pool Name, including Formation Mesa Queen	Kind of Lease State, Federal or Fee State	Lease No. E-8560
Location Com.				
Unit Letter J	2310	Feet From The South Line and 2310	Feet From The East	
Line of Section 13	Township 16 S	Range 31 E	, NMPM, Eddy	County

III. DESIGNATION OF TRANSPORTER OF OIL AND NATURAL GAS

Name of Authorized Transporter of Oil <input type="checkbox"/> or Condensate <input type="checkbox"/>	Address (Give address to which approved copy of this form is to be sent)
Name of Authorized Transporter of Casinghead Gas <input type="checkbox"/> or Dry Gas <input checked="" type="checkbox"/>	Address (Give address to which approved copy of this form is to be sent)
Phillips Petroleum Co.	Bartlesville, Oklahoma
If well produces oil or liquids, give location of tanks.	Is gas actually connected? When
	Yes 5-2-67

If this production is commingled with that from any other lease or pool, give commingling order number:

IV. COMPLETION DATA

Designate Type of Completion - (X)	<input type="checkbox"/> Oil Well	<input type="checkbox"/> Gas Well	<input type="checkbox"/> New Well	<input type="checkbox"/> Workover	<input type="checkbox"/> Deepen	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Same Res'v.	<input type="checkbox"/> Diff. Res'v.
Date Spudded	Date Compl. Ready to Prod.	Total Depth				P.B.T.D.		
Elevations (DF, RKB, RT, GR, etc.)	Name of Producing Formation	Top Oil/Gas Pay				Tubing Depth		
Perforations						Depth Casing Shoe		
TUBING, CASING, AND CEMENTING RECORD								
HOLE SIZE	CASING & TUBING SIZE		DEPTH SET			SACKS CEMENT		

V. TEST DATA AND REQUEST FOR ALLOWABLE OIL WELL

(Test must be after recovery of total volume of load oil and must be equal to or exceed top allowable for this depth or be for full 24 hours)

Date First New Oil Run To Tanks	Date of Test	Producing Method (Flow, pump, gas lift, etc.)	
Length of Test	Tubing Pressure	Casing Pressure	Choke Size
Actual Prod. During Test	Oil - Bbls.	Water - Bbls.	Gas - MCF

GAS WELL

Actual Prod. Test - MCF/D	Length of Test	Bbls. Condensate/MMCF	Gravity of Condensate
Testing Method (pilot, back pr.)	Tubing Pressure (shut-in)	Casing Pressure (shut-in)	Choke Size

VI. CERTIFICATE OF COMPLIANCE

I hereby certify that the rules and regulations of the Oil Conservation Commission have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

C. J. Chamberlain
 (Signature)

Agent
 (Title)

9-22-71
 (Date)

OIL CONSERVATION COMMISSION

APPROVED **SEP 27 1971**, 19____
 BY *W. A. Gussard*
OIL AND GAS INSPECTOR
 TITLE _____

This form is to be filed in compliance with RULE 1104.
 If this is a request for allowable for a newly drilled or deepened well, this form must be accompanied by a tabulation of the deviation tests taken on the well in accordance with RULE 1111.
 All sections of this form must be filled out completely for allowable on new and recompleted wells.
 Fill out only Sections I, II, III, and VI for changes of owner, well name or number, or transporter, or other such change of condition.
 Separate Forms C-104 must be filed for each pool in multiply completed wells.

**NEW MEXICO
OIL CONSERVATION COMMISSION**

SANTA FE, NEW MEXICO

**NOTICE OF WELL CONNECTION OR AUTHORITY TO ASSIGN ALLOWABLE
AIR VOLUMES EXPRESSED IN MCF**

The following well has been connected to the common unit of the oil and gas operations limited
 well number shown below

Well No. **12/57** Pool **Manufacturers** Lease **Southwest**
 Operator **Phillips Petroleum Co.** Unit Letter **150**
 Effective Date **1-1-68** Revised Acreage **1.000**
 Revised Acreage Factor **1.000**
 Revised Deliverability **1.000**
 Revised A-D Factor **1.000**

RECALCULATION OF SUPPLEMENTAL ALLOWABLE

MONTH	NO. OF MO.	ALLOWABLE	DIFFERENCE	MONTH	% OF MO.	ALLOWABLE	DIFFERENCE
JULY				JULY			
AUGUST				AUGUST			RECEIVED
SEPTEMBER				SEPTEMBER			
OCTOBER				OCTOBER			
NOVEMBER	3677		28199	NOVEMBER			
DECEMBER			28200	DECEMBER			
TOTAL ALLOWABLE FOR		(Cancelled or Additional) ALLOWABLE		16399			
NET ALLOW		0	REVISED		16399	NET ALLOW	
CURRENT ALLOW		0	REVISED		16399	CURRENT ALLOW	
APPROXIMATE		0	APPROXIMATE		16399	APPROXIMATE	

NOTICE OF SHUT-IN

The following described well has been shut-in for Failure of Compliance

Operator **Phillips Petroleum Co.** Pool **Manufacturers** Lease **Southwest** Date **1-1-68**
 Well No. **12/57** Unit Letter **150** Sec. **1** Twp. **15N** Rng. **15E**
 Effective Date of Shut-in **1-1-68** Reason for Shut-in **Failure of Compliance**

A. L. PORTER, Jr., Director
 By _____

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TRANSPORTER	OIL GAS
OPERATOR	3
PRORATION OFFICE	

NEW MEXICO OIL CONSERVATION COMMISSION
REQUEST FOR ALLOWABLE
AND
AUTHORIZATION TO TRANSPORT OIL AND NATURAL GAS

Form C-104
Supersedes Old C-104 and C-110
Effective 1-1-65

RECEIVED

FEB 13 1967

I. Operator **Robert A. Dean**

Address **823 Midland Tower, Midland, Texas**

Reason(s) for filing (Check proper box)

New Well Change in Transporter of: Oil Dry Gas
 Recompletion Casinghead Gas Condensate
 Change in Ownership

Other (Please explain) **O. P. O. ARTESIA, OFFICE**

If change of ownership give name and address of previous owner

II. DESCRIPTION OF WELL AND LEASE

Lease Name **Southern Union 18 State** Lease No. **E 8560** Well No. **1** Pool Name, including Formation **Undersaturated ~~Barren~~ ^{Barren}** Kind of Lease **State, Federal or Fee State**

Location

Unit Letter **J**; **2310** Feet From The **S** Line and **2310** Feet From The **E**

Line of Section **13** Township **16-S** Range **31-E**, NMPM, **Eddy** County

III. DESIGNATION OF TRANSPORTER OF OIL AND NATURAL GAS

Name of Authorized Transporter of Oil or Condensate Address (Give address to which approved copy of this form is to be sent)

Name of Authorized Transporter of Casinghead Gas or Dry Gas Address (Give address to which approved copy of this form is to be sent)

Phillips Petroleum Co. **Bartlesville, Oklahoma**

If well produces oil or liquids, give location of tanks. Unit **J** Sec. **13** Twp. **16-S** Rge. **31-E** Is gas actually connected? **No** When **5-2-67**

If this production is commingled with that from any other lease or pool, give commingling order number: **None**

IV. COMPLETION DATA

Designate Type of Completion - (X)	Oil Well	Gas Well	New Well	Workover	Deepen	Plug Back	Same Restv.	Diff. Restv.
		X	X					
Date Spudded 11-15-67	Date Compl. Ready to Prod. 1-29-67	Total Depth 3690	P.B.T.D. 3430					
Elevations (DF, RKB, RT, GR, etc.) 4287 Cr.	Name of Producing Formation Queen	Top Oil/Gas Pay 3354	Tubing Depth 3368					
Perforations 3358 - 70	Depth Casing Shoe 3689							
TUBING, CASING, AND CEMENTING RECORD								
HOLE SIZE	CASING & TUBING SIZE	DEPTH SET	SACKS CEMENT					
10 3/4	8 5/8	433	825 sx					
6 3/4	4 1/2	3689	145 sx					
	2 3/8	3368						

V. TEST DATA AND REQUEST FOR ALLOWABLE OIL WELL

(Test must be after recovery of total volume of load oil and must be equal to or exceed top allowable for this depth or be for full 24 hours)

Date First New Oil Run To Tanks	Date of Test	Producing Method (Flow, pump, gas lift, etc.)	
Length of Test	Tubing Pressure	Casing Pressure	Choke Size
Actual Prod. During Test	Oil - Bbls.	Water - Bbls.	Gas - MCF

GAS WELL

Actual Prod. Test - MCF/D 1.030	Length of Test 6 hrs.	Bbls. Condensate/MMCF 0	Gravity of Condensate 0
Testing Method (pilot, back pr.) Prover	Tubing Pressure 835	Casing Pressure 833	Choke Size Various

VI. CERTIFICATE OF COMPLIANCE

I hereby certify that the rules and regulations of the Oil Conservation Commission have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

Robert A. Dean
(Signature)
Operator
(Title)
February 9, 1967
(Date)

OIL CONSERVATION COMMISSION

APPROVED **MAY 11 1967**, 19____
BY *W. A. Gussett*
TITLE **OIL AND GAS INSPECTOR**

This form is to be filed in compliance with RULE 1104.

If this is a request for allowable for a newly drilled or deepened well, this form must be accompanied by a tabulation of the deviation tests taken on the well in accordance with RULE 111.

All sections of this form must be filled out completely for allowable on new and recompleted wells.

Fill out only Sections I, II, III, and VI for changes of owner, well name or number, or transporter, or other such change of condition.

Separate Forms C-104 must be filed for each pool in multiply completed wells.

NE MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

File

RECEIVED

Type Test <input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special				Test Date 2/4/67			
Company Robert A. Dean			Connection None				
Pool West Mesa			Formation Upper Queen			Unit	
Completion Date 1/29/67		Total Depth 3690		Plug Back TD 3430		Elevation 4387 GL	Farm or Lease Name Southern Union 13 State
Csg. Size 4 1/2	Wt. 9.5	d 4.090	Set At 3679	Perforations: From 3353 To 3370		Well No. 1	
Tbg. Size 2 3/8	Wt. 4.70	d 1.995	Set At 3368	Perforations: From To		Unit J	Sec. Twp. Rge. 13 16S 31E
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single				Packer Set At None		County Eddy	
Producing Thru Tubing		Reservoir Temp. *F a		Mean Annual Temp. *F 600		Baro. Press. - P _s 13.2	
State New Mexico		L		H		G _g .845	
		% CO ₂ 0		% N ₂ 5.5		% H ₂ S 0	
Prover X		Meter Run		Taps			

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. *F	Press. p.s.i.g.	Temp. *F	Press. p.s.i.g.		Temp. *F
1.	2		1/8	729		69	833	74	833		120
2.	2		3/16	653		68	782	69	750		1
3.	2		1/4	520		68	655	68	665		1
4.	2		3/8	330		68	520	68	546		1
5.							310	68	381		1

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	.2648		712.2	.9915	1.008	1.031	219
2	.6082		666.2	.9924	1.083	1.029	450
3	1.087		533.2	.9924	1.006	1.023	610
4	2.378		343.2	.9924	1.085	1.015	894
5							

NO.	P _r	Temp. *R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Mcf/bbl.
1	1.27	529	1.79	.910	None	
2	1.14	528	1.78	.944	A.P.I. Gravity of Liquid Hydrocarbons	
3	0.91	528	1.78	.956	Specific Gravity Separator Gas .845	X X X X X X X X
4	0.59	528	1.78	.970	Specific Gravity Flowing Fluid X X X X X	
5					Critical Pressure 583 P.S.I.A.	P.S.I.A.
					Critical Temperature 296 R	R

NO.	P _t ²	P _w ²	P _w ²	P _e ² - P _w ²	(1) $\frac{P_e^2}{P_e^2 - P_w^2} =$	(2) $\left[\frac{P_e^2}{P_e^2 - P_w^2} \right]^n =$
1		763.2	582.5	133.6	1.775	1.672
2		673.2	160.0	255.1		
3		559.2	312.7	403.4		
4		394.2	155.4	560.7		
5						

AOF = Q $\left[\frac{P_e^2}{P_e^2 - P_w^2} \right]^n = 1070$

Absolute Open Flow	1070	Mcf @ 15.025	Angle of Slope θ	Slope, n	.60
--------------------	------	--------------	-------------------------	----------	-----

Remarks: Amended C-122

Approved By Commission:	Conducted By: <i>J. L. Smith</i>	Calculated By:	Checked By:
-------------------------	-------------------------------------	----------------	-------------

OIL REPORTS & GAS SERVICES
P. O. BOX 743 LOS ALAMOS, N. M.

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Robert A. Dean
Southern Union 13 State No. 1
Unit J, Sec. 13, T16S, R31E
Eddy County, New Mexico
February 4, 1967

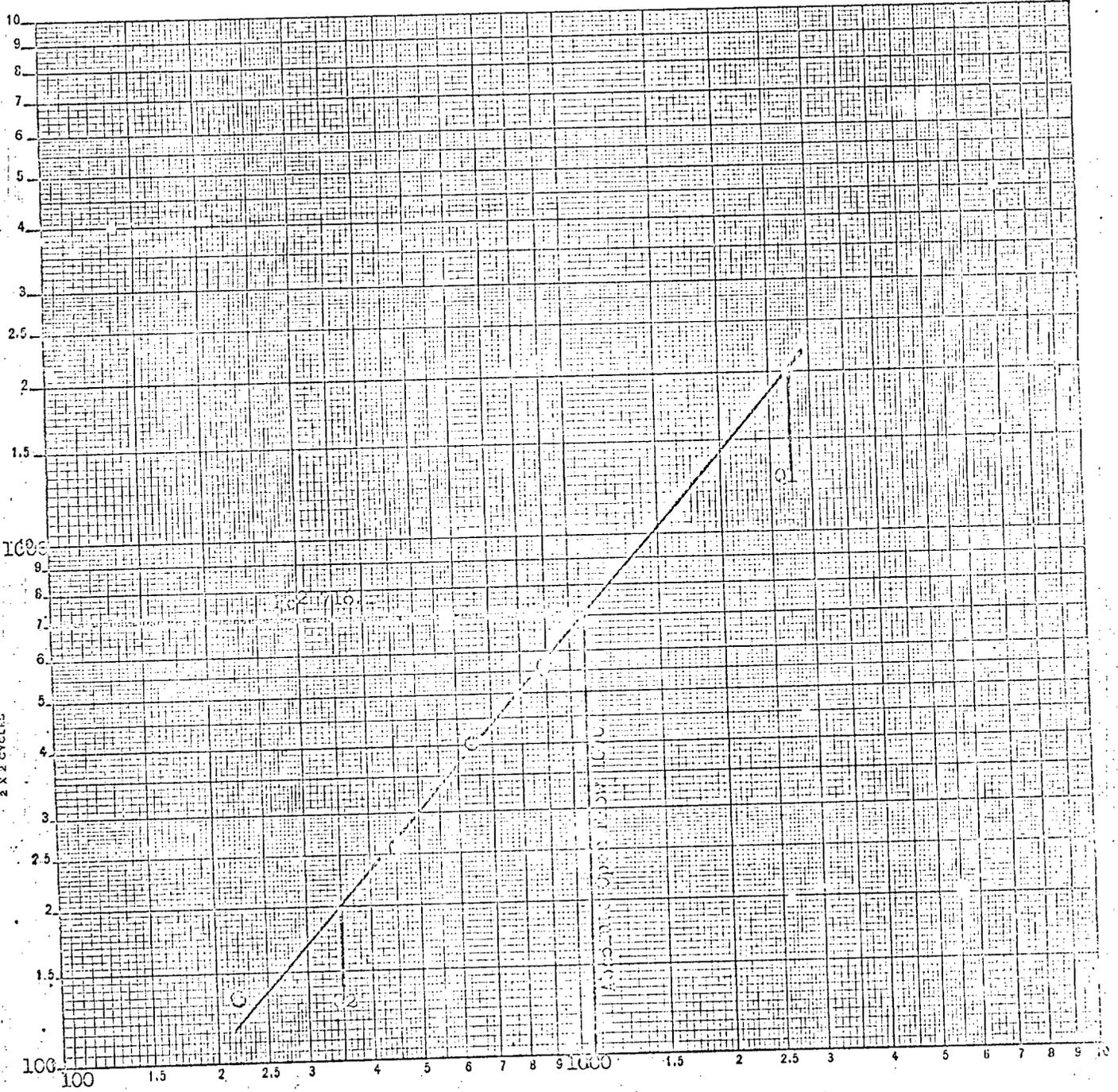
FEB 15 1967

C. C. C.
ARTIFICIAL OFFICE

AMENDED

Pc2 - Pt. 2

LOG LOG
LOGARITHMIC 350-110
KLUFFEL & ESSER CO. MADE IN U.S.A.
2 X 2 CYCLES



Q MCFPD

$\text{Log } Q1 = 3.439333$
 $\text{Log } Q2 = 2.541068$
 $\hline 0.898265$

November 29, 1966

Robert A. Dean
825 Midland Tower
Midland, Texas

RE: Southern Union 13
State #1, Mass. Canon

Listed below are the results of the deviation survey's run
while drilling the above well:

433'	3/4°
1050'	1°
1565'	3/4°
2079'	1/2°
2614'	1/2°
2870'	3/4°
3398'	1/4°
3543'	3/4°
3690'	3/4°

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FEB 1 1967

O. C. C.
ARTERIA OFFICE

Subscribed and sworn to before me this 28th day of November
1966.

My Comm. Expires
October 3, 1969

[Signature]
Notary Public

[Signature]
Notary Public

1 copy Rec'd.
OIL CONSERVATION COMMISSION

BOX 2045

HOBBS, NEW MEXICO

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MAY 8 1967

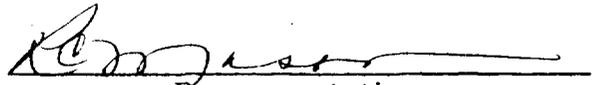
O. C. C.
ARTESIA, OFFICE

NOTICE OF GAS CONNECTION

DATE May 2, 1967

This is to notify the Oil Conservation Commission that connection for the purchase of gas from the Robert A. Dean, Southern Union State,
Operator Lease
J, 13-16-31, Mesa Queen, Phillips Petroleum Company
Well Unit S. T. R. Pool Name of Purchaser
was made on May 2, 1967.

PHILLIPS PETROLEUM COMPANY
Purchaser


Representative
R. C. Mason

Regional Production Manager
Title

cc: To operator
Oil Conservation Commission - Santa Fe

MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

J.F. to Copy J.F. 25/55
Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

Operator Robert A. Dean		Lease Southern Union 1/3 State Com		Well No. 1
Unit Letter J	Section 13	Township 16-S	Range 31-E	County Eddy
Actual Footage Location of Well: 2310 feet from the S line and 2310 feet from the E line				
Ground Level Elev: 4387.2	Producing Formation Queen	Pool <i>Mesa Queen</i> Undesignated	Dedicated Acreage: 160 Acres	

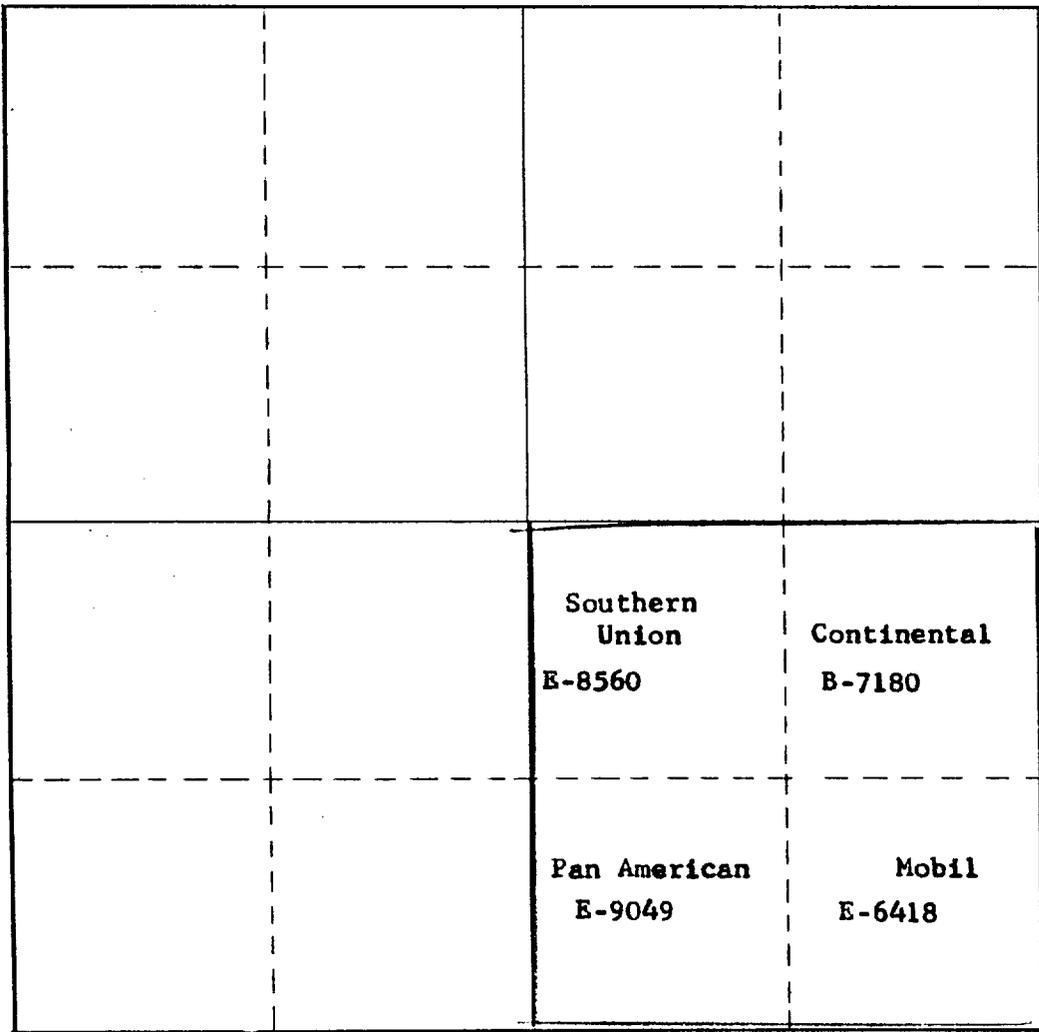
1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes No If answer is "yes," type of consolidation Communitization

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

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CERTIFICATION **MAR 20 1967**

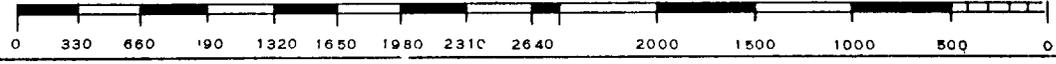
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name *Robert A. Dean*
Position **Operator**
Company **Robert A. Dean**
Date **February 16, 1967**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed _____
Registered Professional Engineer and/or Land Surveyor _____

Certificate No. _____



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OPERATOR	

Form C-105
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5a. Indicate Type of Lease
State Fee

5. State Oil & Gas Lease No.
E 8560

7. Unit Agreement Name

8. Farm or Lease Name
Southern Union 1/3 State

9. Well No.
1

10. Field and Pool, or Wildcat
Simple Mesa Queen
Bunker Hill Padron

1a. TYPE OF WELL
OIL WELL GAS WELL DRY OTHER

b. TYPE OF COMPLETION
NEW WELL WORK OVER DEEPEN PLUG BACK DIFF. RESVR. OTHER

2. Name of Operator
Robert A. Dean

3. Address of Operator
823 Midland Tower, Midland, Texas 79701

4. Location of Well
UNIT LETTER **J** LOCATED **2310** FEET FROM THE **S** LINE AND **2310** FEET FROM

THE **E** LINE OF SEC. **13** TWP. **16-S** RGE. **31-E** NMPM

12. County
Eddy

15. Date Spudded **11-14-66** 16. Date T.D. Reached **11-22-66** 17. Date Compl. (Ready to Prod.) **1-29-67** 18. Elevations (DF, RKB, RT, GR, etc.) **4297 KB** 19. Elev. Casinghead **4287 Gr.**

20. Total Depth **3690** 21. Plug Back T.D. **3430** 22. If Multiple Compl., How Many **→** 23. Intervals Drilled By **Rotary Tools** Cable Tools **All**

24. Producing Interval(s), of this completion - Top, Bottom, Name
3358 - 3370 Queen Sand

25. Was Directional Survey Made
Yes

26. Type Electric and Other Logs Run
Welox Acoustic Velocity

27. Was Well Cored
No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8	24	433	10 3/4	225 sx	0
4 1/2	9.5	3689	6 3/4	145 sx	0
2 3/8	2.8	3368	6 3/4	0	0

29. LINER RECORD 30. TUBING RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
None					2 3/8	3650	

31. Perforation Record (Interval, size and number)
3358 - 70 12 holes

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
3358 - 70	500 gals. MCA

33. PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump) Flowing	Well Status (Prod. or Shut-in) Shut-in
Date of Test 2-4-67	Hours Tested 6 hrs.	Choke Size Prover
Prod'n. For Test Period →	Oil - Bbl. 0	Gas - MCF 1,050
Flow Tubing Press.	Casing Pressure Unknown	Water - Bbl. 0
Calculated 24-Hour Rate →	Oil - Bbl.	Gas - MCF
Oil Gravity - API (Corr.)	Water - Bbl.	Gas - Oil Ratio 0

34. Disposition of Gas (Sold, used for fuel, vented, etc.)
Phillips Petroleum Co. Test Witnessed By **W. L. Smith**

35. List of Attachments

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED Robert A. Dean TITLE Operator DATE February 9, 1967

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Commission not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, Items 30 through 34 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico

Northwestern New Mexico

T. Anhy <u>1225</u>	T. Canyon _____	T. Ojo Alamo _____	T. Penn. "B" _____
T. Salt <u>1385</u>	T. Strawn _____	T. Kirtland-Fruitland _____	T. Penn. "C" _____
B. Salt <u>2300</u>	T. Atoka _____	T. Pictured Cliffs _____	T. Penn. "D" _____
T. Yates <u>2495</u>	T. Miss _____	T. Cliff House _____	T. Leadville _____
T. 7 Rivers <u>None</u>	T. Devonian _____	T. Menefee _____	T. Madison _____
T. Queen <u>3355</u>	T. Silurian _____	T. Point Lookout _____	T. Elbert _____
T. Grayburg <u>3390</u>	T. Montoya _____	T. Mancos _____	T. McCracken _____
T. San Andres _____	T. Simpson _____	T. Gallup _____	T. Ignacio Qtzte _____
T. Glorieta _____	T. McKee _____	Base Greenhorn _____	T. Granite _____
T. Paddock _____	T. Ellenburger _____	T. Dakota _____	T. _____
T. Blinbry _____	T. Gr. Wash _____	T. Morrison _____	T. _____
T. Tubb _____	T. Granite _____	T. Todilto _____	T. _____
T. Drinkard _____	T. Delaware Sand _____	T. Entrada _____	T. _____
T. Abo _____	T. Bone Springs _____	T. Wingate _____	T. _____
T. Wolfcamp _____	T. _____	T. Chinle _____	T. _____
T. Penn. _____	T. _____	T. Permian _____	T. _____
T. Cisco (Bough C) _____	T. _____	T. Penn. "A" _____	T. _____

FORMATION RECORD (Attach additional sheets if necessary)

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0	433	433	Surface rock & shale w/ thin sd. strgs.				
433	1225	792	Red Beds, shale w/sd.strgs.				
1225	1350	125	Anhy.				
1350	2300	950	Salt				
2300	2495	195	Salt, anhy & Lime - Yates				
2495	2545	50	Silty & Limey sand				
2545	3355	810	Lime and Anhy.				
3355	3390	45	Queen sand				
3390	3630	240	Lime & Dolo.				
3630	3658	28	Penrose sand				
3658	3690	32	Dolo. T.D.				

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PRODUCTION OFFICE	
OPERATOR	/

NEW MEXICO OIL CONSERVATION COMMISSION
MISCELLANEOUS REPORTS ON WELLS

FORM C-103
(Rev 3-55)

(Submit to appropriate District Office as per Commission Rule 1106)

Name of Company Robert A. Dean ✓				Address 823 Midland Tower, Midland, Texas			
Lease Southern Union 15 State		Well No. 31	Unit Letter J	Section 13	Township 16-S	Range 31-E	

Date Work Performed	Pool Undesignated <i>Penrose</i>	County Eddy
---------------------	--	-----------------------

THIS IS A REPORT OF: *(Check appropriate block)*

- | | | |
|--|---|--|
| <input type="checkbox"/> Beginning Drilling Operations | <input type="checkbox"/> Casing Test and Cement Job | <input type="checkbox"/> Other (Explain):
Plug Back. |
| <input type="checkbox"/> Plugging | <input type="checkbox"/> Remedial Work | |

Detailed account of work done, nature and quantity of materials used, and results obtained.

**Tested Penrose sand perforations 3636 - 45 on pump for 31 days.
 Total recovery was 74 barrels of formation oil or an average of 2.4 barrels per day.
 This being non-commercial, plug back to 3430 with cast iron bridge plug was made on
 1-28-67.**

RECEIVED

FEB 13 1967

O. D. C.
ARTESIA, OFFICE

Witnessed by Robert A. Dean	Position Operator	Company Robert A. Dean
---------------------------------------	-----------------------------	----------------------------------

FILL IN BELOW FOR REMEDIAL WORK REPORTS ONLY

ORIGINAL WELL DATA

D F Elev.	T D	P BTD	Producing Interval	Completion Date
-----------	-----	-------	--------------------	-----------------

Tubing Diameter	Tubing Depth	Oil String Diameter	Oil String Depth
-----------------	--------------	---------------------	------------------

Perforated Interval(s)

Open Hole Interval	Producing Formation(s)
--------------------	------------------------

RESULTS OF WORKOVER

Test	Date of Test	Oil Production BPD	Gas Production MCFPD	Water Production BPD	GOR Cubic feet/Bbl	Gas Well Potential MCFPD
Before Workover						
After Workover						

OIL CONSERVATION COMMISSION

I hereby certify that the information given above is true and complete to the best of my knowledge.

Approved by <i>W. A. Gressett</i>	Name <i>Robert A. Dean</i>
--------------------------------------	-------------------------------

Title OIL AND GAS INSPECTOR	Position Operator
---------------------------------------	-----------------------------

Date MAR 13 1967	Company Robert A. Dean
----------------------------	----------------------------------

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TRANSPORTER	OIL	
	GAS	
PRODUCTION OFFICE		
OPERATOR		4

NEW MEXICO OIL CONSERVATION COMMISSION
MISCELLANEOUS REPORTS ON WELLS

FORM C-103
(Rev 3-55)

(Submit to appropriate District Office as per Commission Rule 1106)

Name of Company	Robert A. Daan	Address	823 Midland Tower, Midland, Texas
-----------------	----------------	---------	-----------------------------------

Lease	Southern Union 13 State	Well No.	1	Unit Letter	J	Section	13	Township	16-S	Range	31-B
-------	-------------------------	----------	---	-------------	---	---------	----	----------	------	-------	------

Date Work Performed	January 28 & 29, 1967	Pool	Undesignated <i>Queen Well</i>	County	Eddy
---------------------	-----------------------	------	--------------------------------	--------	------

THIS IS A REPORT OF: (Check appropriate block)

<input type="checkbox"/> Beginning Drilling Operations	<input type="checkbox"/> Casing Test and Cement Job	<input checked="" type="checkbox"/> Other (Explain):
<input type="checkbox"/> Plugging	<input type="checkbox"/> Remedial Work	Plug Back to Queen

Detailed account of work done, nature and quantity of materials used, and results obtained.

1-28-67 Set cast iron plug @3430'
Perforate 3358-70 - 12 holes - Queen sand zone

1-29-67 Acidized Queen sand w/500 gals. M.C.A.
Flowing and cleaning up Queen zone
Preparing to run 4 point test.

RECEIVED

FEB 1 1967

O. C. C.
ARTEBIA, OFFICE

Witnessed by	Position	Company
--------------	----------	---------

FILL IN BELOW FOR REMEDIAL WORK REPORTS ONLY

ORIGINAL WELL DATA

D F Elev.	T D	P B T D	Producing Interval	Completion Date
Tubing Diameter	Tubing Depth	Oil String Diameter	Oil String Depth	
Perforated Interval(s)		Producing Formation(s)		
Open Hole Interval				

RESULTS OF WORKOVER

Test	Date of Test	Oil Production BPD	Gas Production MCFPD	Water Production BPD	GOR Cubic feet/Bbl	Gas Well Potential MCFPD
Before Workover						
After Workover						

OIL CONSERVATION COMMISSION

I hereby certify that the information given above is true and complete to the best of my knowledge.

Approved by	<i>W. A. Gressett</i>	Name	<i>Robert A. Daan</i>
Title	OIL AND GAS INSPECTOR	Position	Operator
Date	MAR 13 1967	Company	Robert A. Daan

Well File

REQUEST FOR THE EXTENSION OF AN EXISTING POOL

OR

THE CREATION OF A NEW POOL

TO: The Oil Conservation Commission
State of New Mexico

Date: **February 9,** 19**67**

The **Robert A. Dean** Name of Operator **Southern Union 13 State** Name of Lease

1 Well No. Located **2310** feet from the **East** line and **2310** feet

from the **South** line of **13** Section **16-S** Township **31-E** Range

is outside the boundaries of any pool producing from the same formation. On the basis of the information submitted here-
with on form C-105, we hereby request that the **Mesa Queen**

pool be extended to include the following described area **SE/4 Section 13, 16-S, 31-E**

RECEIVED

FEB 13 1967

O. C. C.
ARTESIA OFFICE

or that a new pool be created to include the following described area

Suggested name:

Robert A. Dean Operator

Name of Producing Formation: **Queen**

Robert A. Dean
Representative

February 10, 1967

Oil Reports & Gas Services
P. O. Box 763
Hobbs, New Mexico

Attention: Donna Holler

Re: Robert A. Dean Southern
Union State No. 1 J
13-16-31, Gas Well Test

Dear Donna:

Referring to the subject Gas Well Test, dated February 4, 1967, please show me how you arrived at the Pcr and Tcr shown. My figures, 578 and 300 respectively, do not agree with yours. However, as the nitrogen content exceeds the volume shown in the manual, my calculations may be incorrect.

Very truly yours,

OIL CONSERVATION COMMISSION

R. L. Stamets
Geologist

RLS/bh

NUMBER OF COPIES RECEIVED		5
DISTRIBUTION		
SANTA FE		
FILE	1-	
U.S.G.S.		
LAND OFFICE		
TRANSPORTER	OIL	
	GAS	
PRODUCTION OFFICE		
OPERATOR		3

NEW MEXICO OIL CONSERVATION COMMISSION
MISCELLANEOUS REPORTS ON WELLS

FORM C-103
(Rev 3-55)

(Submit to appropriate District Office as per Commission Rule 1106)

Name of Company Robert A. Dean	Address 823 Midland Tower, Midland, Texas
--	---

Lease Southern Union 13 State	Well No. 1	Unit Letter J	Section 13	Township 16-S	Range 31-E
---	----------------------	-------------------------	----------------------	-------------------------	----------------------

Date Work Performed	Pool <i>under</i> Bunker Hill Penrose	County Eddy
---------------------	---	-----------------------

THIS IS A REPORT OF: (Check appropriate block)

<input checked="" type="checkbox"/> Beginning Drilling Operations	<input checked="" type="checkbox"/> Casing Test and Cement Job	<input type="checkbox"/> Other (Explain):
<input type="checkbox"/> Plugging	<input type="checkbox"/> Remedial Work	

Detailed account of work done, nature and quantity of materials used, and results obtained.

Commenced Drilling 11-15-66.
 Set 433' 8 5/8" w/225 sx cement circulated. Tested to 1000#. WOC 24 hours.
 Drilled 7 7/8" hole to 2300'; Reduced hole to 6 3/4" to T.D. 3690'.
 Set 3689' of 4 1/2" 9.5# w/145 sx (This was calculated to bring cement back to base of salt with 10% overage). WOC 72 hours.
 Perforated 3636-45 w/9 holes.
 Penrose sand fraced w/30,000# sand, 20,000 gals. jelled brine water.
 Installed pumping unit 12-5-66.
 This well is not completed. We are recovering load.

RECEIVED
 DEC 8 1966
 O. C. C.
 ARTEBIA, OFFICE

Witnessed by Robert A. Dean	Position Operator	Company Robert A. Dean
---------------------------------------	-----------------------------	----------------------------------

FILL IN BELOW FOR REMEDIAL WORK REPORTS ONLY

ORIGINAL WELL DATA

D F. Eley. 4397	T D 3690	P B T D 3689	Producing Interval Penrose	Completion Date
Tubing Diameter 2 3/8	Tubing Depth 3645	Oil String Diameter 4 1/2	Oil String Depth 3689	
Perforated Interval(s) 3636 - 45				
Open Hole Interval		Producing Formation(s) Penrose		

RESULTS OF WORKOVER

Test	Date of Test	Oil Production BPD	Gas Production MCFPD	Water Production BPD	GOR Cubic feet/Bbl	Gas Well Potential MCFPD
Before Workover						
After Workover						

OIL CONSERVATION COMMISSION I hereby certify that the information given above is true and complete to the best of my knowledge.

Approved by <i>W. A. Gressett</i>	Name <i>Robert A. Dean</i>
Title OIL AND GAS INSPECTOR	Position Operator
Date DEC 14 1966	Company Robert A. Dean

NO. OF COPIES RECEIVED	6
DISTRIBUTION	
SANTA FE	1
FILE	1
U.S.G.S.	2
LAND OFFICE	1
OPERATOR	1

NEW MEXICO OIL CONSERVATION COMMISSION
RECEIVED

Form C-101
Revised 1-1-65

NOV 16 1966

O. C. C.

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work
 b. Type of Well
 2. Name of Operator
 3. Address of Operator
 4. Location of Well
 19. Proposed Depth
 20. Rotary or C.T.
 21. Elevations (Show whether DF, RT, etc.)
 21A. Kind & Status Plug. Bond
 21B. Drilling Contractor
 22. Approx. Date Work will start

5A. Indicate Type of Lease
 STATE FEE
 5. State Oil & Gas Lease No.
E-8560
 7. Unit Agreement Name
 8. Farm or Lease Name
SOUTHERN UNION STATE
 9. Well No.
1
 10. Field and Pool, or Wildcat
under
BUNKER HILL PENROSE
 12. County
EDDY
 19A. Formation
PENROSE
 20. Rotary or C.T.
ROTARY
 21. Elevations (Show whether DF, RT, etc.)
4387 GL
 21A. Kind & Status Plug. Bond
BLANKET BOND
 21B. Drilling Contractor
WEK
 22. Approx. Date Work will start
NOVEMBER 16

23. PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
11 "	8 5/8	24	425	200	CIRCULATE TO BASE
6 3/4	4 1/2	14 9 1/2	3650	150	OF SALT

APPROVAL VALID
 FOR 90 DAYS UNLESS
 DRILLING COMMENCED,
 EXPIRES 2-15-67

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signed J. S. McCall Title AGENT Date NOVEMBER 16, 1966

(This space for State Use)
 APPROVED BY [Signature] TITLE OIL AND GAS INSPECTOR DATE NOV 17 1966

CONDITIONS OF APPROVAL, IF ANY:

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

NOV 16 1966

All distances must be from the outer boundaries of the Section.

D. C. C. ARTEZIA OFFICE

ROBERT A. DEAN		Lease		SOUTHERN UNION 13 STATE		Well No. 1
Section	Township	Range	County			
13	16 SOUTH	31 EAST	EDDY			

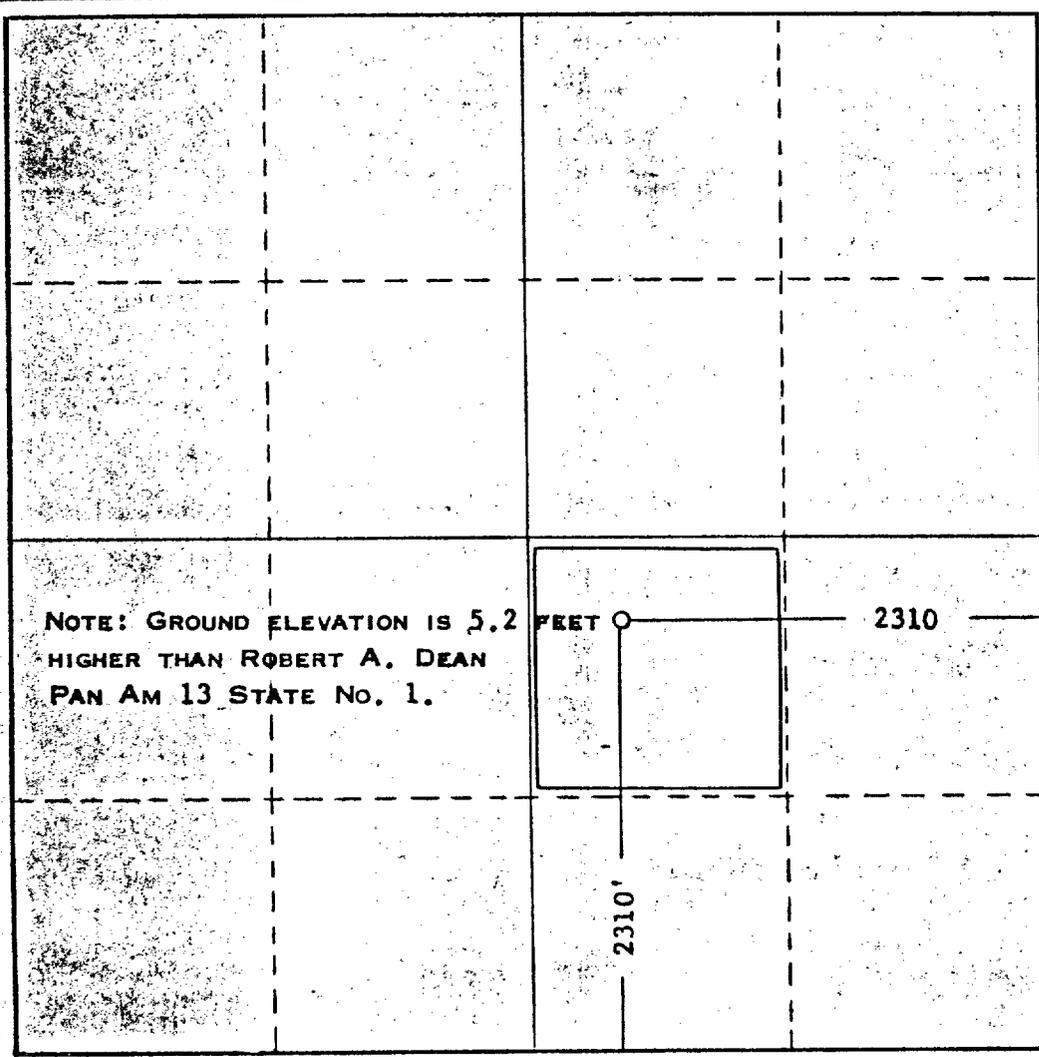
Location of Well: 2310 feet from the SOUTH line and 2310 feet from the EAST line

Producing Formation	Pool	Dedicated Acreage
PENROSE	BUNKER HILL PENROSE	40 (NW 1/4)

- Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
- If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
- If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes No If answer is "yes," type of consolidation _____
 If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

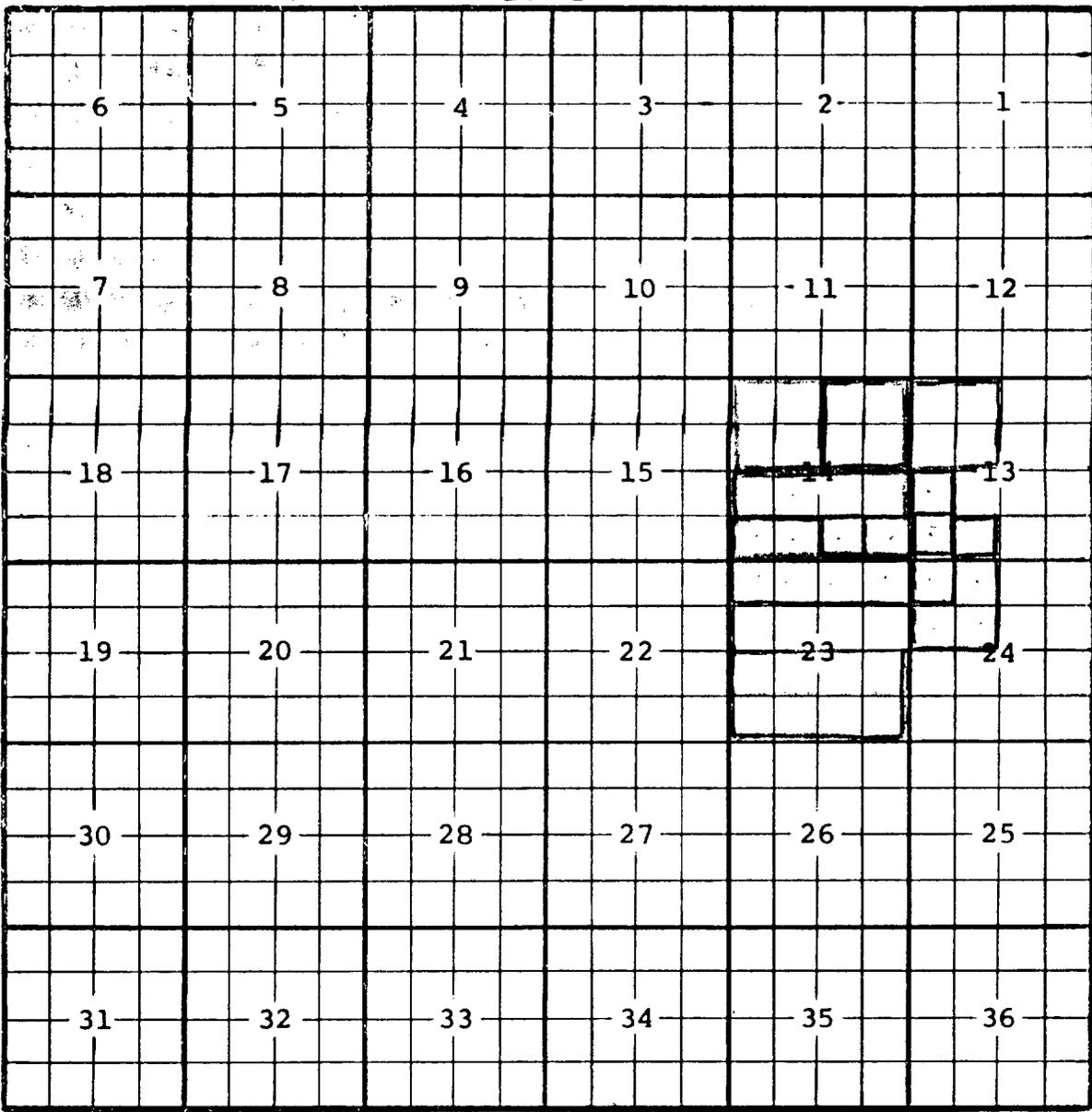
Name: *Earl J. McClellan*
 Position: **AGENT**
 Company: **ROBERT A. DEAN**
 Date: **NOVEMBER 16, 1966**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: **NOV. 8, 1966**
 Registered Professional Engineer and/or Land Surveyor

 Certificate No. **W. 876**

COUNTY Eddy POOL Bunker Hill - Queen Penrose Associated
 TOWNSHIP 16 South RANGE 31 East NMPM



Description: NW/4 SW/4 Sec. 13 (R-2870, 3-1-65)
Contract vertical limits to include only Penrose formation (R-3080, 7-1-66)
 Ext: SW/4 SW/4 Sec 13 (R-6623, 4-7-81) Ext: SE/4 SE/4 sec 14, NW/4 NW/4 sec 24
(R-6789, 8-26-81) Ext: SW/4 SE/4 sec. 14 (R-6890, 1-2-82) Ext: SW/4 SW/4 sec 14, N/2 N/2 sec 23, S/2 NW/4 & NE/4 NW/4 sec 24 (R-6923, 3-9-82) (out of order R6838¹¹⁻⁸⁻⁸¹ Sec 13 SE/4 SW/4)
 Ext: Sec: 14 N/2 S/2 + ^{1/4} (R-7076-9-27-82)
 Ext: Sec: 13 NW/4, Sec: 23 S/2 N/2 + S/2 (R-7193, 1-26-83)
 Reclassify as associated pool (R-7227, 3-2-83)



Combination Logging Systems
Dual Laterolog
Micro Laterolog



FILE NO: _____

COMPANY: **READ + STEVENS INC.**

WELL: **DARTMOUTH #1**

FIELD: **BUNKER HILL**

COUNTY: **EDDY** STATE: **NEW MEXICO**

LOCATION: **660155L * FEL**

SEC: **14** TWP: **16S** RGE: **31E**

Permanent Datum: **GROUND LEVEL** Elev: **4491**

Log Measured from: **KB** Ft. Above Permanent Datum: **9**

Other Services: **CN/CDL PROLOG**

Date: **4-29-81**

Run No: **ONE**

Log No: **63592**

Depth: **4250**

Depth: **4248**

Depth: **4245**

Bottom Logged Interval: **1228**

Logging Interval: **8 5/8' / 1236**

Logger: **STARON**

Operator: **7/38**

Source of Rmt and Rmc: **M FLUM**

Source of Rmt and Rmc: **8 HOURS**

Recorded By: **M. KAME**

Witnessed By: **Brown**

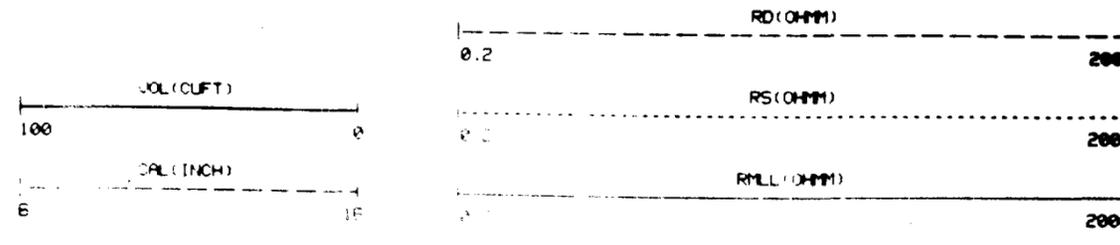
Remarks: **VOLUME SET TO TAKE OUT 4 1/2" CSB**
1. SK. TIC: 10 FT3 **1. LG. TIC: 100 FT3**

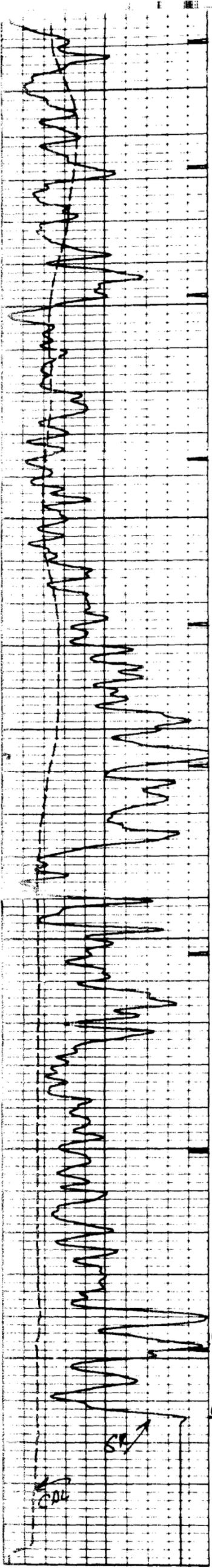
	RUN NO 1			RUN NO 2			RUN NO 3		
	DLL	MLL	GR	DLL	MLL	GR	DLL	MLL	GR
Tool Series No	1229	3102	1308						
Elec. Serial No	49177	32690							
Man. Serial No	49177								
DTS Series No	3502	5087							
Serial No			37487						
Det. Model No			D763						
Type			SCINT						
Tool Position	CENT. OPEN FREE								
Panel Series No	3751-47961								
Serial No	3752-45950								

Run No	GENERAL		GAMMA RAY				DLL	MLL	CDP		CALIPER	
	From	To	Speed	TC	Sens.	Zero	Scale	Scale	Rw	Rmt	Porosity	Scale
1	4245	1228	REC VAR			10	2-2000	2-2000				6-16

GAMMA RAY CALIPER & CDP DEPTH DUAL LATEROLOG MICRO LATEROLOG

READ AND STEVENS INC. HL6246/HOBBS 4-29-81
DARTMOUTH NO.1 BUNKER HILL FIELD LEA COUNTY, N.M. MEXICO
SERVICE J 269A FILE 3





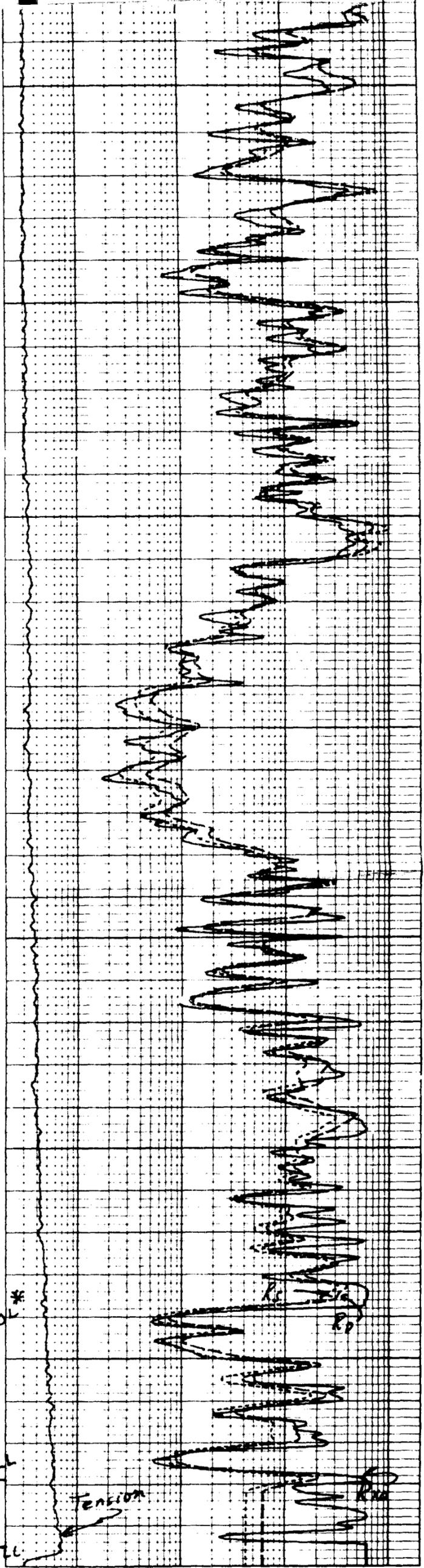
03900

04000

04100

OFT3 VOL*
 04200
 GR
 DLL
 FR MLL

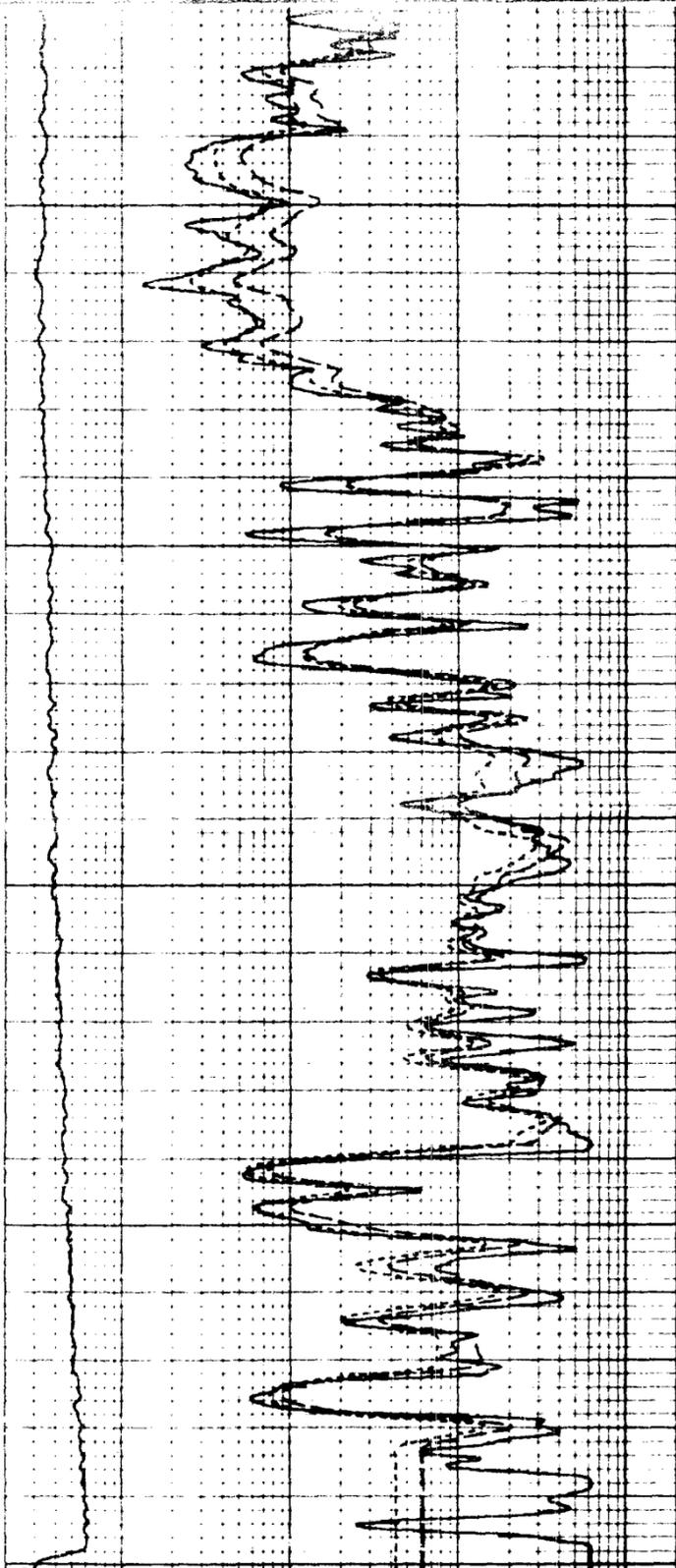
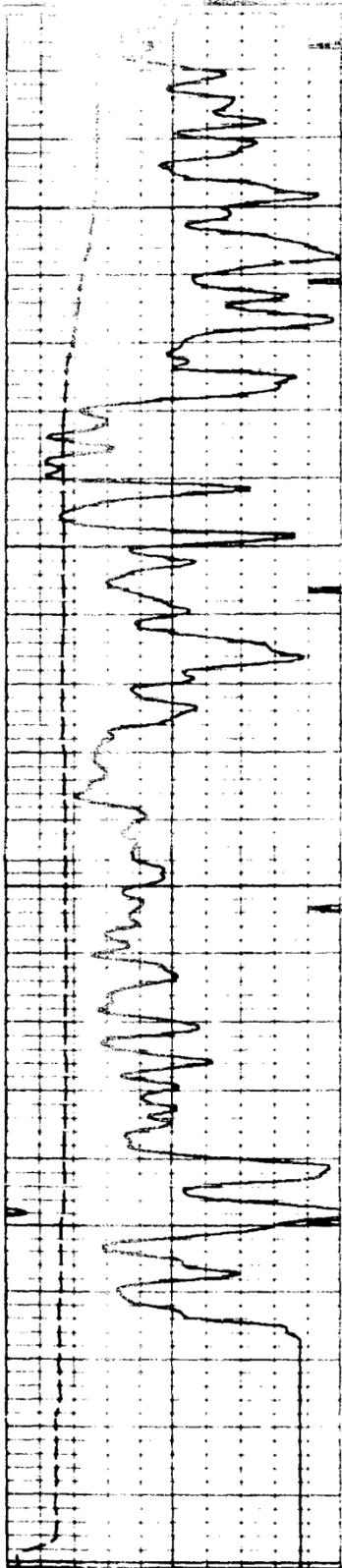
TD
 4248



* This vol. has 4/2 Taken out!

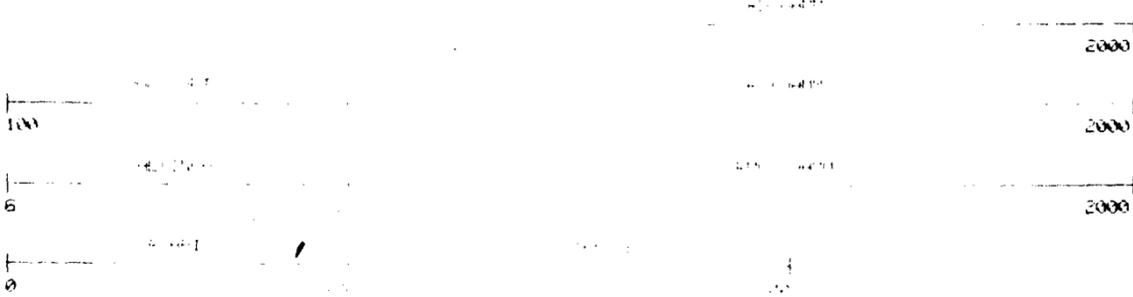
1000
 2000
 3000

2000
 2000
 2000



04100

04200



BEFORE LOG CALIBRATION

CURVE	MULTIPLYS	COUNTS SEC		EHLINK FACTORS		RATIO
		HIGH	LOW	ACC.	MULT.	
ES	52.6	3118.3				
IS	136.1	88.6				
ED						

PRELIMINARY WATERFLOOD STUDY
READ & STEVENS, INC.
BUNKER HILL FIELD
PENROSE SAND FORMATION
EDDY COUNTY, NEW MEXICO

EDDY COUNTY ENGINEERS ASSOCIATION

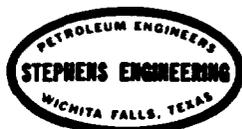
ON CONTRACT FOR PENROSE

REVISIONS 1-thru 7

Case No. 9606



TELEPHONE - 817-723-2166



POST OFFICE BOX - 2249

WICHITA FALLS, TEXAS
76307

September 30, 1988

Read & Stevens, Inc.
P. O. Box 1518
Roswell, New Mexico 88201

Re: Preliminary Waterflood Study
Bunker Hill Field
Penrose Sand Formation
Eddy County, New Mexico
As of August 1, 1988

Gentlemen:

Pursuant to your request we have examined available data as it pertains to the referenced properties to determine the feasibility of implementing a waterflood project. In the body of this report you will find the results of our study, including pertinent statistical presentations of field data and our recommendations as they apply to potential secondary recovery from these properties.

The following is a condensation of our findings from gathered data, the conclusions drawn from this data, and our recommendations for the successful implementation of a secondary recovery project:

1. The Read & Stevens, Inc. properties producing from the Penrose Sand in the Bunker Hill Field, Eddy County, New Mexico include the Amoco Supron Mesa, Amoco West Mesa, Bogle Farm, Dartmouth, Getty Mesa, Gulf West Mesa, Mobil (West) Mesa, Richardson, Supron and Turner leases. Other properties included in this study and in the Project Area are Larue and Muncy's, Joe lease and Rutter Federal lease. These properties will hereafter be referred to as the Project Area. A preliminary examination was made of the Larue and Muncy Amoco-Federal lease; however, it has not been included in the Project

7. The net floodable volume contained in the Project Area is estimated to be 3,152.2 acre-feet. It is estimated that an additional 108.8 stock tank barrels per acre-foot can be recovered by a successful waterflood program. This data translates to ultimate secondary oil reserves of 342,959 stock tank barrels from the Project Area.
8. Due to the configuration of the reservoir, the occurrence of one-well leases, the presence of offsetting producing wells and the variation of ownership from lease to lease, a waterflood program in the Project Area can be successfully and equitably accomplished only as a unitized project. Unitization should involve all working and royalty interest owners in the Project Area and is normally comprised of a formula involving cumulative primary reserves and future secondary reserves by lease. Included herein is a "Unitization Parameters" tabulation showing the recommended unitization parameters for this unit. Unitization should be completed prior to any capital investment or water injection. We anticipate unitization to require approximately six months to finalize.
9. It is recommended that a pilot waterflood be initiated immediately following unitization. The purpose of the pilot project will be to detect any directionally oriented fracture system, analyze the injectivity of the reservoir, and prove the overall floodability of the reservoir before a full waterflood program is initiated. We are of the opinion that the Gulf West Mesa well No. 3 should be the initial pilot injection well followed by the Gulf West Mesa well No. 2, the Bogle Farm well No. 1, and the Dartmouth well No. 2. We recommend that the Gulf West Mesa well No. 3 be utilized for pilot injection for three to four months before converting the remaining pilot wells to injection. This will allow an investigation of a possible North-South or East-West permeability orientation. We anticipate that the pilot program will require a maximum of one year to accomplish.
10. To allow six months for unitization and one year for the pilot program and installation of the full waterflood facilities, we have assumed the full waterflood program to begin in Year 2.
11. To successfully sweep the Penrose Sand reservoir, approximately 5,150,000 barrels of water will need to be injected in the Project Area. It is estimated that the reservoir can be swept in seven years and nine months at an average water injection rate of 1,820 barrels per day.

Area due to its distance from the main Project Area and, more importantly, its relatively poor production history.

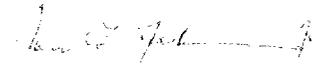
2. Oil and gas have been produced from several reservoirs in the Project Area, namely, the Penrose Sand (oil and gas), the Premier Sand (oil and gas), and the Queen Dolomite (gas). This Preliminary Waterflood Study concentrates on secondary recovery from the Penrose Sand only.
3. The Project Area is inclusive of 29 wells drilled through the Penrose Sand. Read & Stevens, Inc. is the operator of 26 of these wells while Larue and Muncy is the operator of the remaining wells. Of the wells operated by Read & Stevens, Inc., 24 are currently completed as the Penrose Sand oil wells, one well is completed as a Penrose Sand gas well, and one well is temporarily abandoned. The Larue and Muncy wells are currently producing from the Penrose Sand.
4. The cumulative 8/8ths oil and gas production from the Project Area as of August 1, 1988 totaled 333,278 stock tank barrels and 618,600 MCF, respectively. The cumulative 8/8ths oil and gas production as of August 1, 1988 from Read & Stevens, Inc. properties in the Project Area totaled 301,478 stock tank barrels and 602,013 MCF, respectively, while the Larue and Muncy cumulative oil and gas production as of August 1, 1988 from the Project Area totaled 31,800 stock tank barrels and 16,587 MCF, respectively.
5. The gross Penrose Sand reservoir is comprised of a continuous, porous and permeable sand body occurring at an average depth of 3550' and containing approximately 26,725.7 gross acre-feet. In our analysis, we have determined that a primary gas cap exists in the western portion of the Project Area. This gas cap comprises approximately 12,498.7 gross acre-feet while the oil column comprises approximately 14,227.0 gross acre-feet. The net productive oil reservoir is estimated to be 30.8 percent of the gross oil column volume or 4,380.8 acre-feet in the Project Area.
6. Currently, the leases in the Project Area are producing at, or below the economic limit. We have assumed therefore that all primary reserves have been recovered. As previously mentioned, the cumulative primary production as of August 1, 1988 was 333,278 barrels of oil which equates to 76.1 barrels per acre-foot or 13.9 percent of the original oil in place.

Included herein is a general discussion of the program, including tabulations of well records, reservoir/geological data, and reservoir properties. Maps included in the body of this report are the Base Map, Geological Structure Map-Top of Penrose Sand Porosity, Geological Structure Map-Bottom of Penrose Sand Porosity, Isopachous Map-Oil Column with Estimated Floodable Limits, Gross Pay Isopachous Map-Gas Cap Gross Pay and an Injection Facilities Map. Also included are reservoir performance curves for each of the properties in the Project Area. A summary reservoir performance curve was generated from the individual property curves and includes the projection of future secondary reserves with the recommended waterflood program.

We will be pleased to discuss this report with you at your convenience.

Yours very truly

STEPHENS ENGINEERING

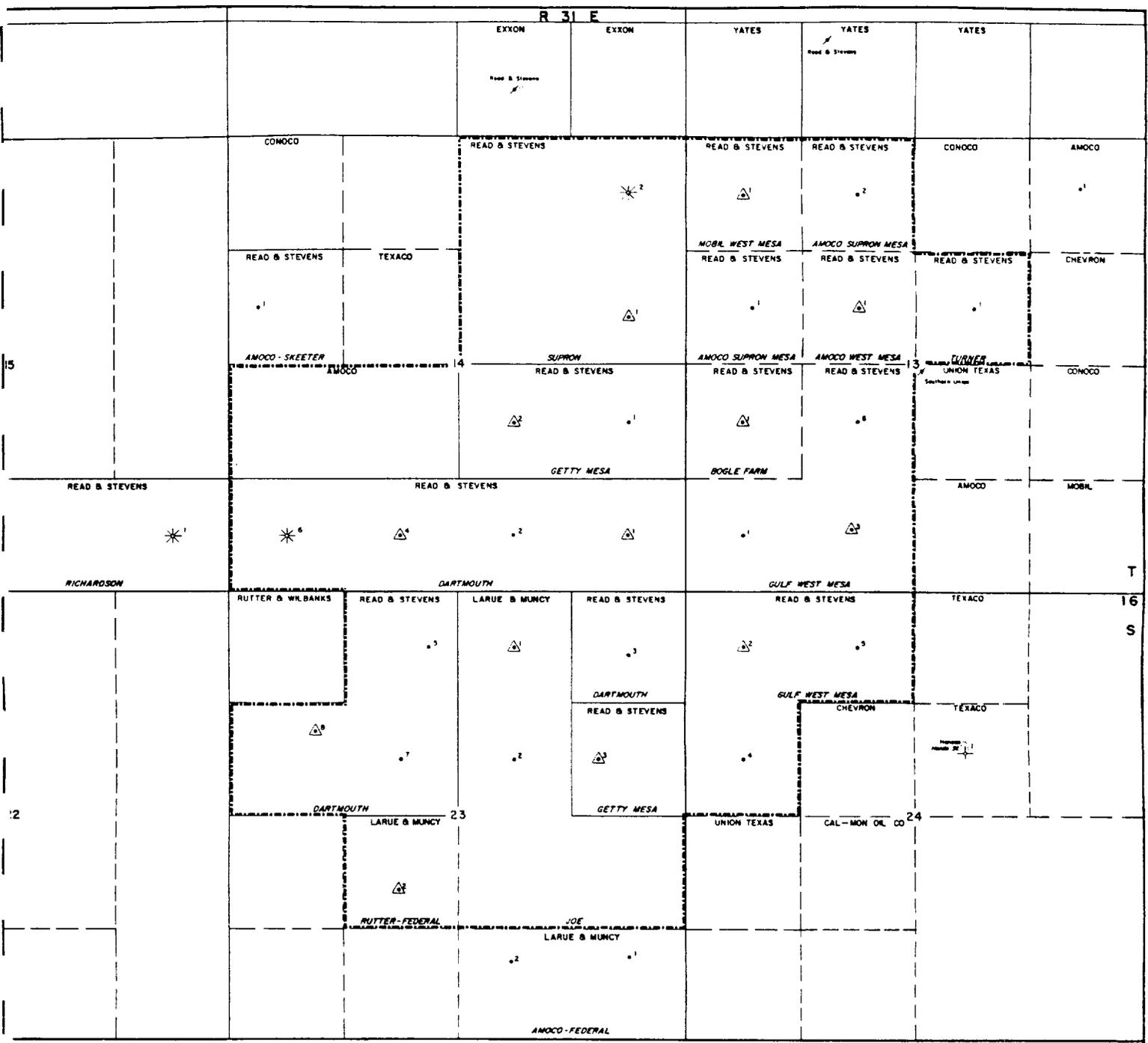

Joe L. Johnson, Jr.


Bud Newton

PRELIMINARY WATERFLOOD STUDY
READ & STEVENS, INC.
BUNKER HILL FIELD
PENROSE SAND FORMATION
EDDY COUNTY, NEW MEXICO

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- LEGEND —
- PRODUCING OIL WELL
 - * PRODUCING GAS WELL
 - △ WATER INJECTION WELL (PROPOSED)
 - ⊕ PLUGGED & ABANDONED WELL
 - ⊕ DRY HOLE
 - LOCATION

PRELIMINARY WATERFLOOD SURVEY
 READ & STEVENS, INC.
 BUNKER HILL FIELD
 PENROSE FORMATION
 EDDY COUNTY, NEW MEXICO
 BASE MAP

— SCALE —

0 100

AMERICAN OVERSEAS OIL COMPANY
 BUNKER HILL FIELD

PRELIMINARY WATERFLOOD STUDY
READ & STEVENS, INC.
BUNKER HILL FIELD
PENROSE FORMATION
EDDY COUNTY, NEW MEXICO

HISTORY AND DEVELOPMENT

During September and October, 1964, Charles B. Read drilled the Bogle Farm well No. 1 in Section 13, Township 16S, Range 31E, Eddy County, New Mexico. Mr. Read's objective was a porous Premier Sand section occurring at approximately 4200'. Well records indicate that a total depth of 4242' was reached on October 7, 1964. Although the Premier Sand proved to be non-commercial, casing was set at 3704' to test two potentially hydrocarbon bearing zones encountered during drilling operations. These zones were the Queen Dolomite at 3332', which proved to be commercially gas productive, and the Penrose Sand at 3604', which proved to be commercially productive of oil and casinghead gas. The Bogle Farm well No. 1 was initially completed in the Penrose Sand and was later commingled with the Queen gas zone.

Additional development in the Project Area did not occur until late 1980 when drilling began on the Gulf West Mesa lease by Read & Stevens, Inc. The subsequent drilling program by Read & Stevens, Inc. in the Project Area has resulted in the completion of 26 wells in the Penrose Sand and one well just outside of the Project Area in the Premier Sand. Twenty-two of the Penrose Sand completions are currently producing oil wells, two are currently producing gas wells, one is currently a shut-in gas well and one is a temporarily abandoned oil well.

HISTORY AND DEVELOPMENT (Cont'd)

Larue and Muncy is the operator of five offsetting wells producing from the Penrose Sand. The Larue and Muncy Amoco Federal No. 1 and the Joe No. 1 were drilled and completed in late 1982 in the Penrose Sand after non-commercial tests in the Premier Sand. First production from the Larue and Muncy Rutter Federal lease was reported in February, 1983 upon completion of the Rutter Federal well No. 2 in the Penrose Sand. The Larue and Muncy Amoco Federal No. 2 and Joe No. 2 were drilled in mid-1983 and completed in the Penrose Sand. The Amoco Federal wells are approximately two locations south of the main Project Area and have not produced significant primary reserves. For these reasons the Amoco Federal wells have not been included in the Project Area for purposes of secondary recovery. The Joe and Rutter Federal leases, however, are well within the recommended pattern and should each have a key role in future secondary recoveries.

Oil and gas production have been obtained in the Project Area from the Premier Sand, Penrose Sand and the Queen Dolomite. The Premier Sand has contributed oil and gas production in limited quantities while the Queen Dolomite in the Project Area has contributed gas production only to date. The vast majority of oil and gas production in the Project Area has come from Penrose Sand completions. As of August 1, 1988, cumulative primary oil and gas production from Penrose Sand completions totaled 333,278 stock tank barrels and 618,600 MCF, respectively, from the Project Area. Read & Stevens, Inc. has produced 301,478 stock tank barrels of oil and

HISTORY AND DEVELOPMENT (Cont'd)

602,013 MCF of gas from the Project Area while Larue and Muncy has produced 31,800 stock tank barrels of oil and 16,587 MCF of gas from the Project Area. Please refer to the "Well Records" tabulation for a listing of each well's current producing characteristics.

PRELIMINARY WATER FLOOD STUDY
READ & STEVENS, INC.
BUNKER HILL FIELD
PENROSE FORMATION
EDDY COUNTY, NEW MEXICO

GEOLOGICAL AND RESERVOIR DATA

The Penrose Sand is a Guadalupe Series, Permian Age sandstone found at an average subsurface depth of approximately 3550' in the Project Area. The reservoir rock is described as a moderately compacted, moderately sorted arkosic sandstone with anhydrite occurring as the major cementing agent. The sandstone grains are consistently coated with corrensite and discrete chlorite which are water and acid sensitive clays. Anhydrite cement and sensitive clays are detrimental to porosity and permeability distribution.

Field structure indicates the Penrose Sand to be draped on the eastern flank of subsurface high and rising to the Northwest at an average rate of 70 feet per mile. The zone is bound on the top and bottom by distinctive anhydrite beds. Areally, the reservoir limits are defined to the Northwest, West, and Southwest by the gas cap and to the East, Southeast and Northeast by an increasing loss of adequate porosity. Geological Structure maps contoured on the top and bottom of the Penrose Sand are included in this report. The Gross Pay Isopachous Maps contained in this report indicate that the Penrose Sand in the Project Area contains approximately 26,725.7 gross acre-feet of reservoir with a porosity greater than 11.8 percent. This porosity cutoff was determined from interpretation of a plot of porosity versus permeability which was generated internally from porosity log and core data. It has further been

GEOLOGICAL AND RESERVOIR DATA (Cont'd)

determined that approximately 12,498.7 gross acre-feet of the total reservoir in the Project Area are contained in the primary gas cap while approximately 14,227.0 gross acre-feet are contained in the oil column.

The Gross Pay Isopachous Maps included herein were prepared from log data, core data, and production data from wells in the Project Area. The maps were constructed by first mapping the total reservoir thickness having a porosity greater than 11.8 percent. The Penrose Sand was then contoured structurally on the top and bottom of the zone. The gas-oil contact was determined on the "Geological Structure Map-Top of Penrose Sand" by analyzing the producing characteristics of each well versus the top of the reservoir in each well. The gas-oil contact was subsequently determined to be at approximately 821 feet above sea level. This gas-oil contact was then plotted on the "Geological Structure Map-Bottom of Penrose Sand" to determine the areal position corresponding to the intersection of the gas-oil contact with the bottom of the reservoir. The purpose of determining the areal position of gas-oil contact intersection with the top and bottom of the reservoir was to define the three different regions in the reservoir, those being: Oil column only, oil column and gas cap, and gas cap only. By transferring the two gas-oil contact intersection lines (top of zone and bottom of zone) onto the Total Gross Pay Isopachous Map the three characteristic reservoir regions were areally defined. The thickness of the gross reservoir in wells situated between the gas-oil contact

GEOLOGICAL AND RESERVOIR DATA (Cont'd)

intersection lines, or in the oil column and gas cap region, were correspondingly adjusted to reflect gross gas pay and gross oil pay. Gas cap and oil column thickness being determined thusly, the Gross Pay Isopachous Maps for the gas cap and oil column were constructed.

As previously mentioned, we have applied a gross pay to net pay adjustment factor of 30.8 percent to the Gross Pay Isopachous Maps to arrive at the net productive volume of reservoir affected by primary production. It must be pointed out, however, that this factor is a volumetrically calculated number based on normal reservoir conditions. This factor was applied due to the variance of porosity and permeability values existing in the reservoir and resulted in a net productive oil reservoir volume of 4,380.8 acre-feet within the Project Area. The effect of a wide variation of porosity and permeability values can typically be that the majority of oil production is being produced from the high porosity, high permeability streaks, which would result in a low calculated recovery when considering the gross reservoir thickness. Several conditions exist in the Project Area; however, that could explain a low primary recovery and are as follows:

1. Normal original bottom hole pressure in the Penrose Sand should have been approximately 1480 psi; however, bottom hole pressure data from the Project Area indicates that the initial bottom hole pressure was approximately 860 psi. The reservoir appears to have been somewhat

GEOLOGICAL AND RESERVOIR DATA (Cont'd)

pressure depleted when development in the Project Area began in late 1980 which would result in a low primary recovery.

2. The normal solution gas-oil ratio at reservoir pressures of 1480 psi and 860 psi should be approximately 460 scf/bbl and 188.2 scf/bbl, respectively. A solution gas-oil ratio of 188.2 scf/bbl agrees quite favorably with the casinghead gas production actually experienced, indicating further that reservoir pressure was somewhat depleted when development began in late 1980.
3. A porosity cutoff for net pay determination of approximately 12.0 percent is standard practice in the Penrose Sand; however, after mapping the oil column thickness using our derived porosity cutoff of 11.8 percent, we arrived at a reservoir volume in the oil column of 14,227.0 acre-feet beneath the Project Area leases. This volume translates to a primary recovery of 23.4 stock tank barrels per acre-foot or 4.26 percent of the original oil in place. In this instance, it is possible that the reservoir volume of 14,227.0 acre-feet in the oil column is an accurate approximation of net productive pay and further that a primary recovery of 4.26 percent of the original oil in place is reasonable.

Should the explanations of these various recovery discrepancies prove that ultimate primary recovery was reduced due to prior

GEOLOGICAL AND RESERVOIR DATA (Cont'd)

depletion or partial depletion of reservoir pressure, then secondary recovery will be substantially greater than that predicted herein. Unfortunately, only a full waterflood program can provide an explanation; however, even if "normal" primary recovery has occurred and the resulting gross to net adjustment factor of 30.8 percent is applicable, the Penrose Sand in the Project Area is nonetheless a favorable waterflood candidate.

Reservoir data used in this survey gathered from log analysis, core analysis, and empirical correlations are as follows:

Average Depth-Top of Penrose porosity, feet	3,550
Average Porosity, %	13.4
Average Original Water Saturation, %	41.4
Average Permeability, millidarcies	19.0
Original Reservoir Temperature, F	107.8
Original Reservoir Pressure, psi	860.0
Estimated Abandonment Pressure, psi	175.0
Bubble Point Pressure of Original Reservoir oil, psi	1,825
Oil Gravity (stock tank), API	35
Reservoir Oil Viscosity, initial conditions, CP	1.4
Original Formation Volume Factor, RB/STB	1.11
Formation Volume Factor at Abandonment, RB/STB	1.04
Solution Gas-Oil Ratio at Initial BHP, SCF/STB	188.2

Using these data, calculations indicate an original oil in place of 548.8 stock tank barrels per acre-foot. The cumulative oil production as of August 1, 1988 was 333,278 stock tank barrels of oil. This is considered to be the ultimate primary recovery since most wells in the Project Area are producing at or below the economic limit. Dividing the cumulative production of 333,278 stock tank barrels by the net reservoir volume of 4,380.8 acre-feet results in a primary recovery of 76.1 stock tank barrels per acre-foot or 13.9 percent of the original oil in place.

GEOLOGICAL AND RESERVOIR DATA (Cont'd)

Gas production has occurred in the Project Area from the primary gas cap and from solution gas in the oil column. The cumulative gas production from the Project Area as of August 1, 1988 was 618,600 MCF. We have estimated that approximately 57 percent of this total gas production has been produced from the gas cap while 43 percent of the total gas production has been produced as solution gas from the oil column.

Water production from the Project Area has been insignificant, indicating that the reservoir is at connate water saturation and no water drive mechanism exists.

The moveable oil saturation after primary depletion from a reservoir producing by means of a solution gas drive mechanism is historically sufficient to make waterflood projects economically feasible. The calculated oil saturation as of August 1, 1988 was 47.3 percent.

PRELIMINARY WATERFLOOD STUDY
 READ & STEVENS, INC.
 BUNKER HILL FIELD
 PENROSE FORMATION
 EDDY COUNTY, NEW MEXICO

WELL RECORDS

Operator Lease Well	T.D. Logger (Ft)	Compl. Date	Csg. Record Size (In.) Depth (Ft.)	Csg. Perforations Interval (Ft)	Formation	Initial Treatment		Initial Potential			Latest Test			KB Elev. Subsea (Ft)
						(Acid)	(Frac)	Oil (BPD)	Wtr (BPD)	Gas (MCFPD)	Oil (BPD)	Wtr (BPD)	Gas (MCFPD)	
<u>Read & Stevens</u> <u>Amoco-Skeeter</u> 1	4038	12-30-83	7 4058	3862-3880	Premier	-	30K gal foam alc & wtr + 39.5 K# 20-40 + 24K# 12-20	27	3.0	18	2.9	0.0	6.7	4284.4
<u>Amoco Supron Mesa</u> 1	4244	2-18-83	5 1/2 4250	3600-3618	Penrose	1K gal MCA	20K gal gel wtr + 10K gal CO2 + 25K# 12-20 + 26K# 8-16	24	2.5	14	5.3	0.0	4.5	4410.0
2	4246	2-25-83	5 1/2 4250	3612-3633	Penrose	1K gal MCA	20K gal gel wtr + 10K gal CO2 + 24K# 20-20 + 30K# 8-16	16	6.0	0	2.9	0.0	1.7	4406.9
<u>Amoco West Mesa</u> 1	4242	11-13-82	4 1/2 4250	3620-3640	Penrose	1K gal MCA	24K gal gel wtr + 10.410K gal CO2 + 24K# 10-20 + 30K# 8-10	24	0.0	0	5.1	0.0	2.8	4406.5
<u>Bogle Farm</u> 1	4195	10-9-64	4 1/2 3704	3605-3629	Penrose	.5K gal MCA	40K gal lse crude + 50K# 20-40	24	0.0	0	2.6	0.0	0.0	4401.0
		3-24-66		3332-3343	Queen	.5K gal MCA 1K gal MCA		0	0.0	2603				
<u>Dartmouth</u> 1	4248	5-7-81	4 1/2 4250	3602-3622	Penrose	1K gal NE	20K gal gel wtr + 10K gal CO2 + 30K# 20-40 + 13.5K# 10-20	50	0.0	0	7.6	0.0	15.8	4402.0
2	4038	11-18-81	4 1/2 4065	3471-3490	Penrose	1K gal NE	33K gal gel wtr + CO2 + 24K# 10-20 + 30K# 8-12	45	5.0	0	3.1	0.0	6.4	4283.9

WELL RECORDS (Cont'd)

Operator Lease Well	T.D. Logger (Ft)	Compl. Date	Csg. Record Size (In.) Depth (Ft.)	Csg. Perforations Interval (Ft)	Formation	Initial Treatment		Initial Potential			Latest Test			KB Elev. Subsea (Ft.)
						(Acid)	(Frac)	Oil (BPD)	Wtr (BPD)	Gas (MCFPD)	Oil (BPD)	Wtr (BPD)	Gas (MCFPD)	
Read & Stevens (Cont'd) Dartmouth (Cont'd) 3	4160	12-17-81	4 1/2 4170	4108-4122	Premier	1K gal NE	20K gal gel wtr + 10K gal CO2 + 82 sks 20-40	4	4.0	0	CIBP @ 4080'			4336.5
		1-6-82		3540-3560	Penrose	1K gal MCA	20K gal gel wtr + 10K gal CO2 + 24K# 10-20 + 30K# 8-12	25	0.0	0	3.4	0.0	7.0	
	4	4043	6-15-82	4 1/2 4050	3419-3438	Penrose	1K gal MCA	20K gal gel wtr + 10K gal CO2 + 24K# 10-20 + 30K# 8-12	21	1.0	130	1.4	0.0	2.9
5	4208	11-2-82	4 1/2 4210	3590-3608	Penrose	1K gal MCA	17,610 gal gel wtr + 8120 gal CO2 + 32K# 8-12	17	0.0	150	3.1	0.0	6.4	4411.6
6	4001	11-9-82	4 1/2 4000	3955-3959 3962-3969	Premier Premier	2K gal MCA (included)		0	0.0	0	CIBP @ 3920'			4235.0
				3386-3403	Penrose	1K gal MCA	23,980 gal 40# gel KCL + 11,100 gal gel CO2 + 24K# 10-20 + 30K# 8-16	0	0.0	685	4.0	0.0	181.6	
7	4070	3-18-83	5 1/2 4080	3424-3442	Penrose	1K gal MCA	2K gal NeFe + 24K# 12-20 + 30K# 8-16	40	1.0	40	5.6	0.0	11.7	4243.3
8	4044	12-15-83	4 1/2 4050	3362-3382	Penrose	100 gal MCA	20K gal gel wtr + 10K gal CO2 + 24K# 12-20 + 30K# 8-16	20	0.0	80	3.9	0.0	8.2	4193.7
Getty Mesa 1	4242	12-6-83	4 1/2 4250	3604-3628	Penrose	1K gal MCA	20K gal gel wtr + 10K gal CO2 + 24K# 10-20 + 30K# 8-16	13	0.0	13	5.7	0.0	6.0	4408.6
	2	4245	1-13-84 4253	4030-4048	Premier	1K gal MCA		0	0.0	1900				4405.0
		8-29-85		3586-3604	Penrose	1K gal MCA	52K gal CO2 + Puregel + 66K# 12-20 + 30K# 8-12	20	0.0	20	13.6	3.1	8.1	

WELL RECORDS (Cont'd)

Operator Lease Well	T.D. Logger (Ft)	Comp. Date	Csg. Record Size (In.) Depth (Ft.)	Csg. Perforations Interval (Ft)	Formation	Initial Treatment		Initial Potential		Latest Test		KB Elev. Subsea (Ft)		
						(Acid)	(Frac)	Oil (BPD)	Wtr (BPD)	Oil (BPD)	Wtr (BPD)		Gas (MCFPD)	Gas (MCFPD)
<u>Read & Stevens (Cont'd)</u>														
<u>Getty Mesa (Cont'd)</u>														
3	4219	3-8-84	4 1/2 4237	3600-3620	Penrose	1K gal MCA	30K gal 70% fm + 30K# 8-12 + 24K# 10-20; 2K gal MCA + 562 K Scf N2 70% fm.	9	0.0	0	4.0	0.0	4.1	4383.4
<u>Gulf West Mesa</u>														
1	4226	10-26-80	4 1/2 4250	4050-4070	Premier	1K gal NE	10K gal Titan 2-30 gel KCL + 10K gal CO2 + 25K# 20-40	4	3.0	47				4401.8
		12-5-80		3612-3632	Penrose	1K gal NE	20K gal Titan 2-30 gel KCL + 10K gal CO2 + 40K# 20-40 + 10K# 10-20	23	0.0	0				
		8-7-84		3612-3632	Penrose		652.5 K Scf N2 + 25K# 10-20 + 30K# 8-16	3	0.0	0	6.2	0.0	4.7	
2	4235	3-14-81	4 1/2 4242	3600-3622	Penrose	1K gal NE	30K gal gel wtr + CO2 + 30K# 20-40 + 13.2 K# 10-20	29	1.0	28	3.8	0.0	2.9	4396.2
		3-27-81		4033-4059	Premier	1K gal NE	10K gal gel KCL + 12K gal CO2 + 17K# 20-40 + 15K# 10-20	.5	8.5	35				
3	4248	8-5-81	4 1/2 4248	3623-3647	Penrose	1K gal NE	15K gal gel wtr + KCL + 6K gal CO2 + 18K# 10-20 + 6.5K# 8-12	38	1.0	0	2.1	0.0	1.6	4902.5
4	4136	12-23-81	4 1/2 4140	3514-3534	Penrose	1K gal NE	20K gal gel wtr + 1K gal CO2 + 24K# 10-20 + 30K# 8-12	17	4.0	0	TA			4306.4

WELL RECORDS (Cont'd)

Operator Lease Well	T.D. Logger (Ft.)	Compl. Date	Csg. Record Size (In.) Depth (Ft.)	Csg. Perforations Interval (Ft)	Formation	Initial Treatment (Acid)	Initial Treatment (Frac)	Initial Potential			Latest Test			KB Elev. Subsea (Ft)
								Oil (BPD)	Wtr (BPD)	Gas (MCFPD)	Oil (BPD)	Wtr (BPD)	Gas (MCFPD)	
Read & Stevens (Cont'd) Gulf West Mesa	4265	12-31-81	4 1/2 4250	3624-3650	Penrose	1K gal NE	20K gal gel wtr + 10K gal CO2 + 24K# 10-20 + 20K# 8-12	17	7.0	0	4.5	0.0	3.5	4401.8
								25	0.0	0	4.7	0.0	3.6	4408.0
Mobil Mesa	4240	12-2-82	4 1/2 4250	3586-3610	Penrose	1K gal MCA	20K gal gel wtr + 10K gal CO2 + 24K# 10-20 + 32K# 8-12	18	3.0	0	2.6	0.0	4.1	4411.0
								Tr.	10.0	Tr.				4197.6
Richardson	3989	9-28-84	4 1/2 4010	3782-3784 3786-3792 3797-3805	Premier	1K gal NE (Included)	40K gal 70% fm Moth. + 48.5K# 20-40 + 30K# 10-20	0	0.0	843				
								0	0.0	843				
Supron	4128	6-23-82	4 1/2 4159	3596-3620	Penrose	1K gal MCA	20K gal gel wtr + 10K gal CO2 + 24K# 10-20 + 30K# 8-12	24	10.0	0	2.6	0.0	8.0	4412.9
								3	0.0	450	.8	0.0	25.8	4409.4
Turner	4268	2-4-84	5 1/2 4265	3624-3648	Penrose	1K gal MCA	30K gal 70% fm + 25K# 10-20 + 30K# 8-16	27	0.0	0	9.4	0.0	4.6	4399.1
								569	41.5	2453	108.0	3.1	321.9	

Sub Total Read and Stevens (Penrose Only)

WELL RECORDS (Cont'd)

Operator Lease Well	T.D. Logger (Ft)	Compl. Date	Csg. Record Size (In.) Depth (Ft.)	Csg. Perforations Interval (Ft)	Formation	Initial Treatment		Initial Potential			Latest Test			KB Elev. Subsea (Ft)						
						(Acid)	(Frac)	Oil (BPD)	Wtr (BPD)	Gas (MCFPD)	Oil (BPD)	Wtr (BPD)	Gas (MCFPD)							
Larue & Muncy Amoco Federal 1	4121	10-23-82	5 1/2 4120	4029-4046	Premier	.5K gal	30K gal + 55K# sd							CIBP @ 4000'	4363.0					
2	3524	4-11-83	4 1/2 3520	3606-3626	Penrose	.5K gal	30K gal + 55K# sd	35	?	16	3.2	0.0	5.0							
				3452-3468	Penrose	.5K gal	40K gal gel + 70K# sd	37	1.0	20	3.9	NA	0.0							
Joe 1	4201	8-22-82	5 1/2 4201	3600-3619	Penrose	.5K gal	30K gal + 57K# sd	42	6.0	11	4.4	0.0	5.0							
				3596-3616	Penrose	.5K gal	38K gal gel + 56.6K# sd	38	0.0	20	3.2	NA	3.2							
2	3685	5-8-83	5 1/2 3685																	
Sub Total Larue & Muncy (Penrose Only)															187	7.0	67	14.7	-	13.2
Total Project Area															756	48.5	2520	122.7	3.1	335.1

PRELIMINARY WATERFLOOD STUDY
 READ & STEVENS, INC.
 BUNKER HILL FIELD
 PENROSE FORMATION
 EDDY COUNTY, NEW MEXICO

RESERVOIR DATA

Operator Lease Well	KB Elevation (Ft)	Top of Penrose (Subsurf.) (Ft)	Perforations (Interval) (Ft)	Total Gross Pay (Ft)	Gross Oil Pay	Gross Gas Pay	Avg. Porosity (%)	Avg. Water Sat. (%)
<u>Read & Stevens</u>								
<u>Amoco-Skeeter</u>								
1	4284.4	3400	3862-3880	22	0	22	14.4	35.6
<u>Amoco Supron Mesa</u>								
1	4410.0	3597	3600-3618	16	16	0	13.9	NA
2	4406.9	3609	3612-3633	12	12	0	12.1	NA
<u>Amoco West Mesa</u>								
1	4406.5	3616	3620-3640	8	8	0	12.3	46.0
<u>Bogie Farm</u>								
1	4401.0	3604	3605-3629	16 est.	16 est.	0	NA	NA
<u>Dartmouth</u>								
1	4402.0	3599	3602-3622	16	16	0	15.2	36.2
2	4283.9	3470	3471-3490	18	18	0	12.4	42.2
3	4336.5	3538	3540-3560	18	18	0	14.8	38.0
4	4250.0	3415	3419-3438	16	7	9	11.6	NA
5	4411.6	3588	3590-3608	11	10	1	12.5	NA
6	4235.0	3382	3386-3403	8	0	8	13.5	46.0
7	4243.3	3421	3424-3442	12	12	0	12.5	NA
8	4193.7	3358	3362-3382	NA	NA	NA	NA	NA
<u>Getty Mesa</u>								
1	4408.6	3602	3604-3628	18	18	0	12.8	41.8
2	4405.0	3582	3586-3604	13	12	1	10.4	53.2
3	4383.4	3599	3600-3620	6	6	0	12.6	48.1

RESERVOIR DATA (Cont'd)

Operator Lease Well	KB Elevation (Ft)	Top of Penrose (Subsurf.) (Ft)	Perforations (Interval) (Ft)	Total Gross Pay (Ft)	Gross Oil Pay	Gross Gas Pay	Avg. Porosity (%)	Avg. Water Sat. (%)
<u>Read & Stevens</u>								
<u>Gulf West Mesa</u>								
1	4401.8	3609	3612-3632	20	20	0	15.9	31.5
2	4396.2	3597	3600-3622	8	8	0	13.6	39.8
3	4402.5	3624	3623-3647	20	20	0	13.3	39.4
4	4306.4	3511	3514-3534	6	6	0	12.3	46.6
5	4401.8	3625	3624-3650	6	6	0	12.4	48.6
6	4408.0	3629	3630-3653	20	20	0	14.2	40.4
<u>Mobil Mesa</u>								
1	4411.0	3585	3586-3610	10	9	1	11.9	46.9
<u>Richardson</u>								
1	4197.6	3321	3325-3345	20	0	20	13.0	41.1
<u>Supron</u>								
1	4412.9	3595	3596-3620	24	24	0	15.9	NA
2	4409.4	3578	3581-3601	14	7	7	11.3	NA
<u>Turner</u>								
1	4399.1	3620	3624-3648	22	22	0	12.3	44.4
<u>Larue & Muncy</u>								
<u>Amoco Federal</u>								
1	4363.0	3607	3606-3626	5 est.	5 est.	0	NA	NA
2	4217.0	3442	3452-3468	7 est.	7 est.	0	NA	NA
<u>Joe</u>								
1	4397.0	3596	3600-3619	16	16	0	13.9	35.4
2	4394.0	3593	3596-3616	10 est.	10 est.	0	NA	NA
<u>Totals/Avg.'s</u>				406	337	69	13.4	41.4
<u>(Project Area only)</u>								

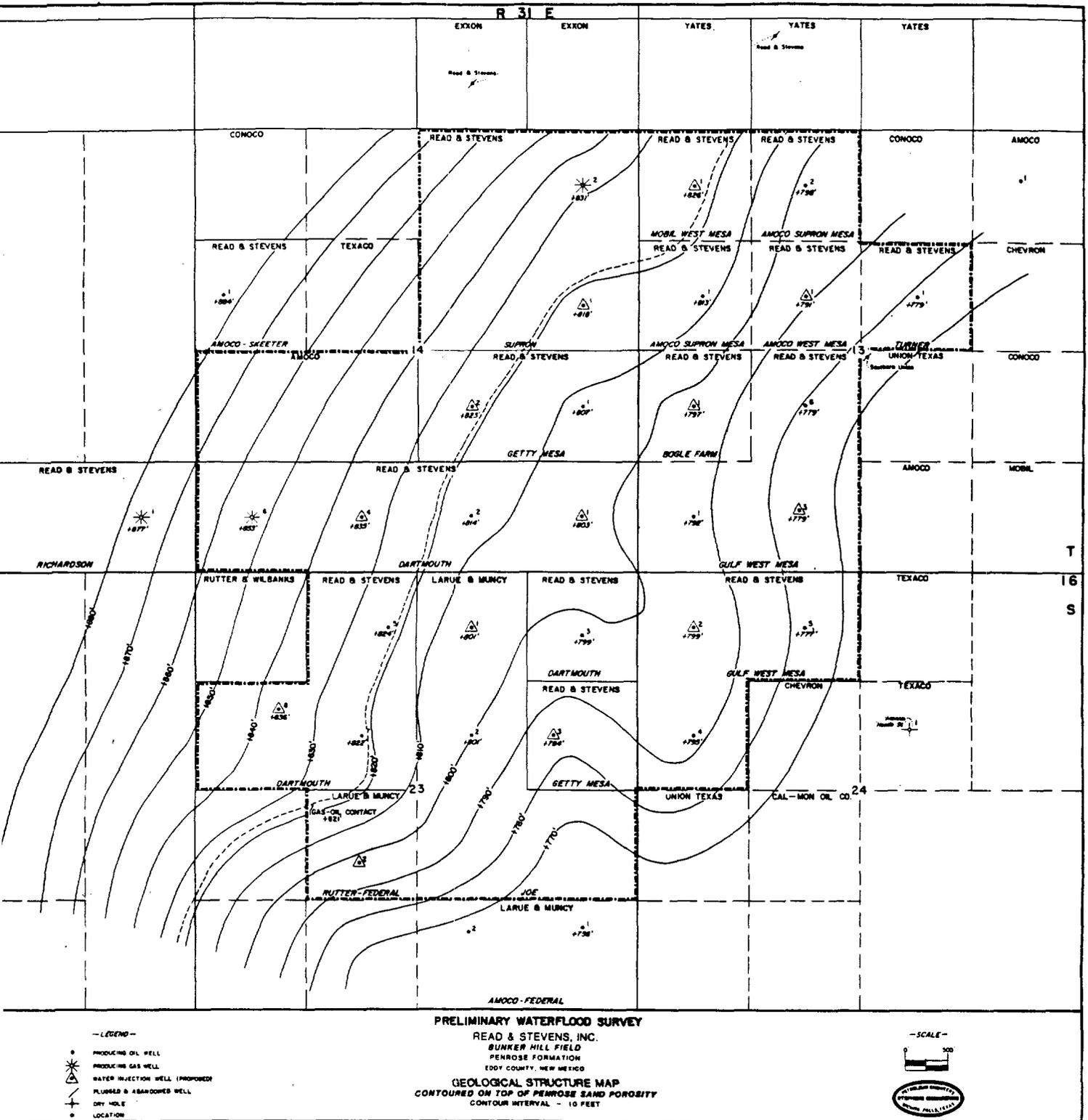
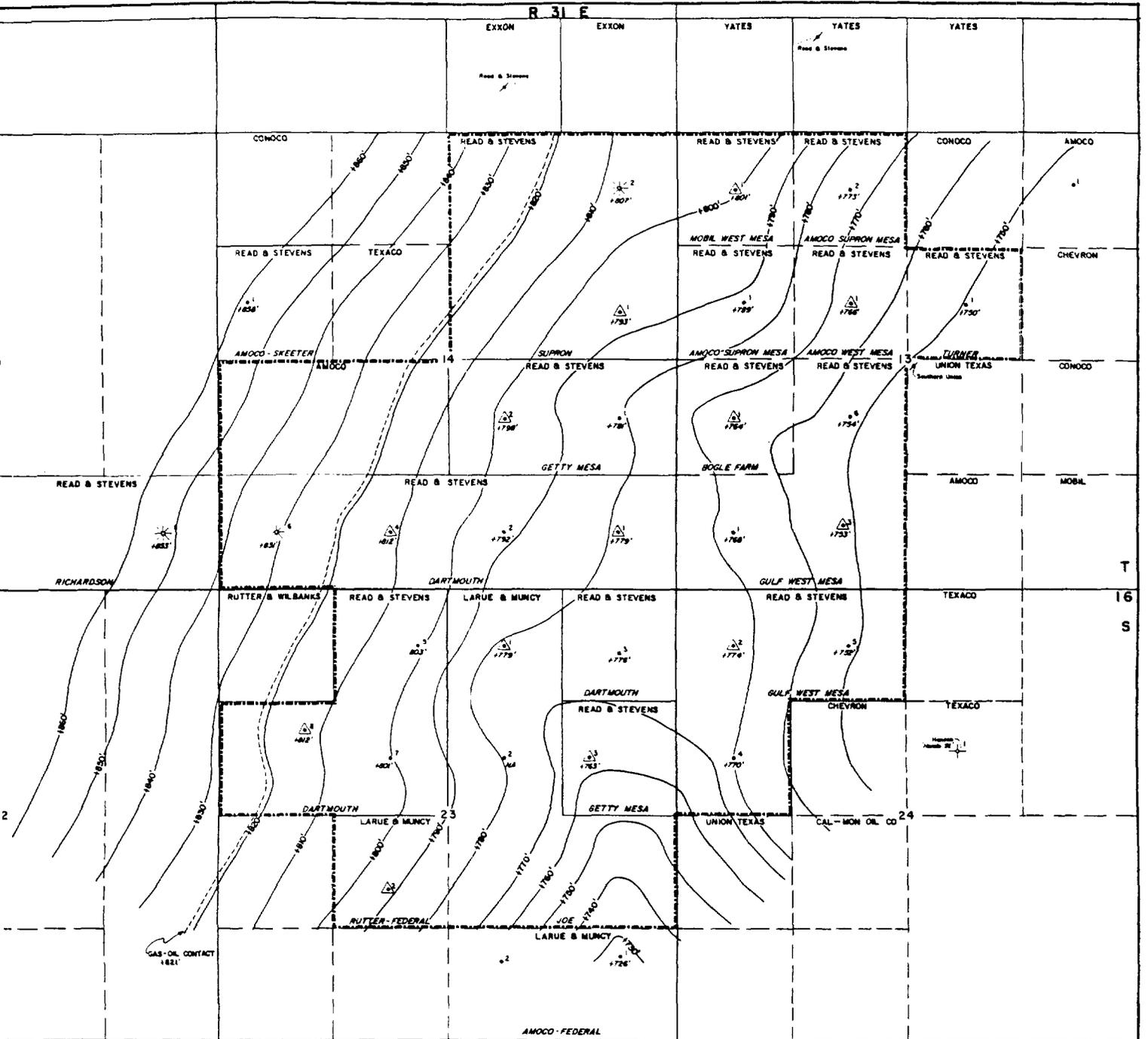
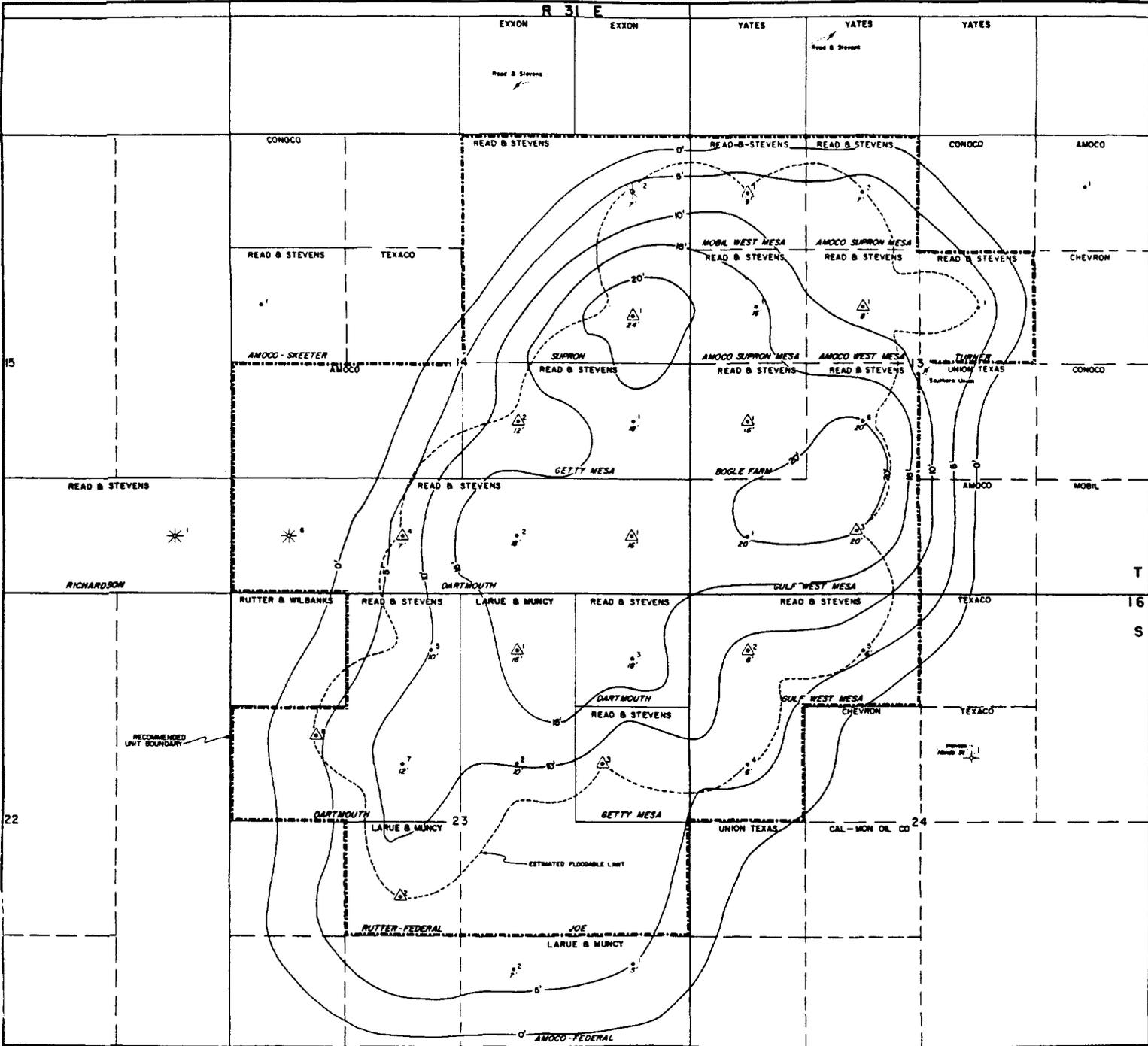


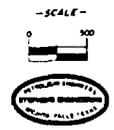
Exhibit "3"
Structure Top

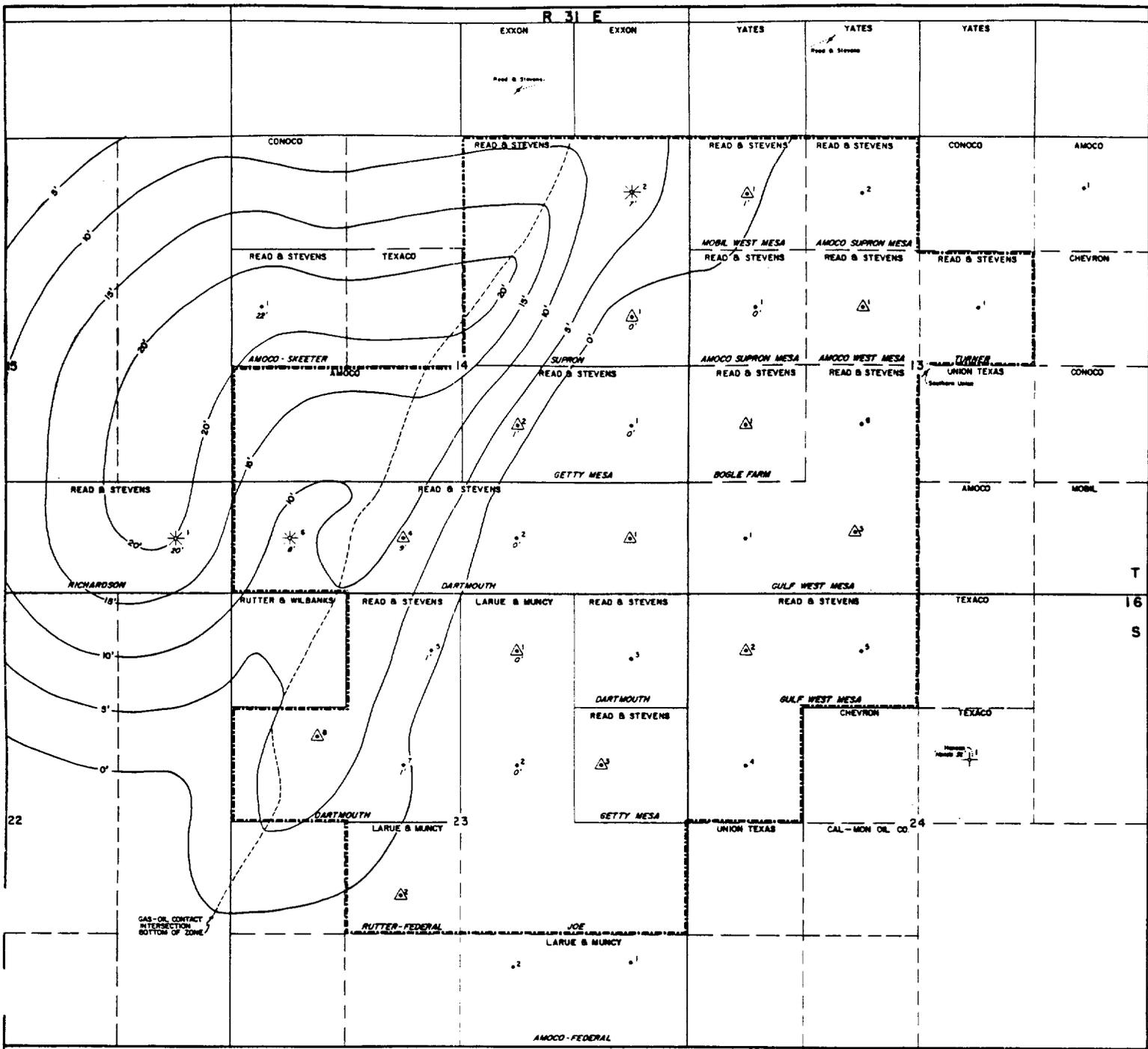




- LEGEND—
- PRODUCING OIL WELL
 - ▲ PRODUCING GAS WELL
 - WATER INJECTION WELL (PROPOSED)
 - ⊕ PLUGGED & ABANDONED WELL
 - DRY HOLE
 - LOCATION

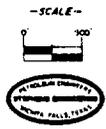
PRELIMINARY WATERFLOOD SURVEY
 READ & STEVENS, INC.
 BUNKER HILL FIELD
 PENROSE FORMATION
 EDDY COUNTY, NEW MEXICO
 ISOPACHOUS MAP
 OIL COLUMN





- LEGEND -**
- PRODUCING OIL WELL
 - ★ PRODUCING GAS WELL
 - △ WATER INJECTION WELL (PROPOSED)
 - △/ PLUGGED & ABANDONED WELL
 - ✕ DRY HOLE
 - LOCATION

PRELIMINARY WATERFLOOD SURVEY
READ & STEVENS, INC.
 BUNKER HILL FIELD
 PENROSE FORMATION
 EDDY COUNTY, NEW MEXICO
ISOPACHOUS MAP
 GAS CAP GROSS PAY
 CONTOUR INTERVAL - 5 FEET



PRELIMINARY WATERFLOOD STUDY
READ & STEVENS, INC.
BUNKER HILL FIELD
PENROSE FORMATION
EDDY COUNTY, NEW MEXICO

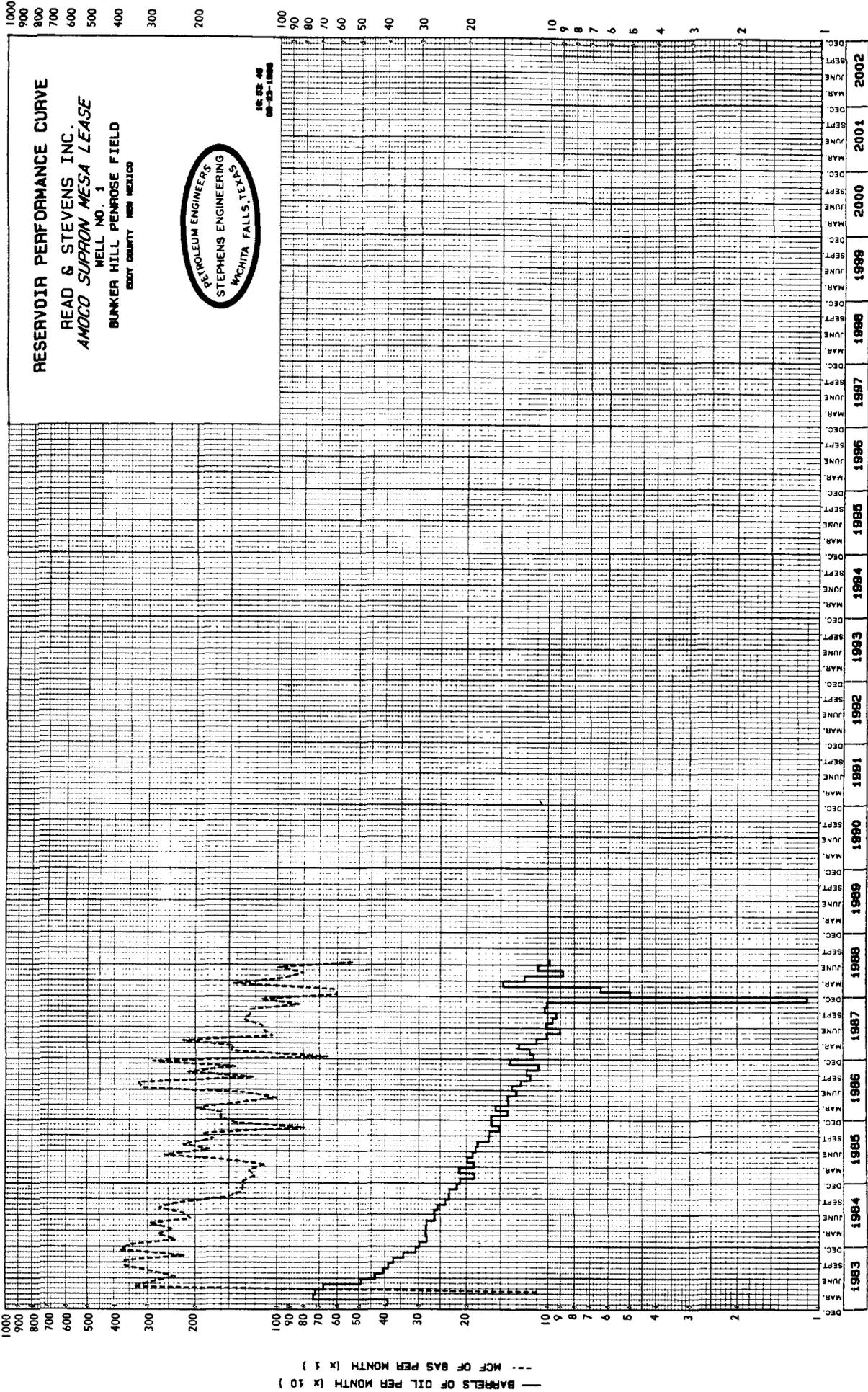
ESTIMATE OF RECOVERABLE OIL

Potential secondary oil reserves for the Project Area were determined by taking the original oil in place of 548.8 stock tank barrels per acre-foot and reducing that figure by the cumulative and ultimate primary oil recovery of 76.1 stock tank barrels per acre-foot and the estimated residual oil after waterflooding of 250.7 stock tank barrels per acre-foot. These figures yield a mobile oil volume of 222.0 stock tank barrels per acre-foot which would be the potential waterflood recovery with an areal and vertical sweep efficiency of 100 percent. We have estimated an areal and vertical sweep efficiency of 70 percent each, based on well spacing and the recommended injection pattern, for a total waterflood efficiency of 49 percent. Applying this overall waterflood efficiency to the mobile oil available to a waterflood program results in a potential secondary recovery of 108.8 stock tank barrels per acre-foot. For a contacted pore space of 3,152.2 acre-feet in the Project Area, a potential secondary oil recovery of 342,959 stock tank barrels is indicated.

The total primary and secondary oil recovery from the Project Area is projected to be 676,237 stock tank barrels. This equates to a recovery of 184.9 stock tank barrels per acre-foot, or 33.7 percent of the original oil in place. The secondary to primary recovery ratio is projected to be 1.03 to 1.

ESTIMATE OF RECOVERABLE OIL (Cont'd)

In choosing an injection pattern for the Project Area, consideration was given to creating a "block" along the gas-oil contact to prevent the loss of recoverable secondary oil into the gas cap. For this reason, we have projected that normally recoverable primary gas from the gas cap will be recovered during waterflooding but during a shorter time period due to repressurization of the reservoir. This repressurization, however, will have a negative effect on free gas and solution gas in the oil column. Any free gas in the oil column should go back into solution with the oil at the approximate time of initial oil response. Additionally, when sufficient reservoir pressure is restored, no further solution gas should come out of solution. This loss of normally recoverable solution gas is not substantial enough to purposefully delay the waterflood program.



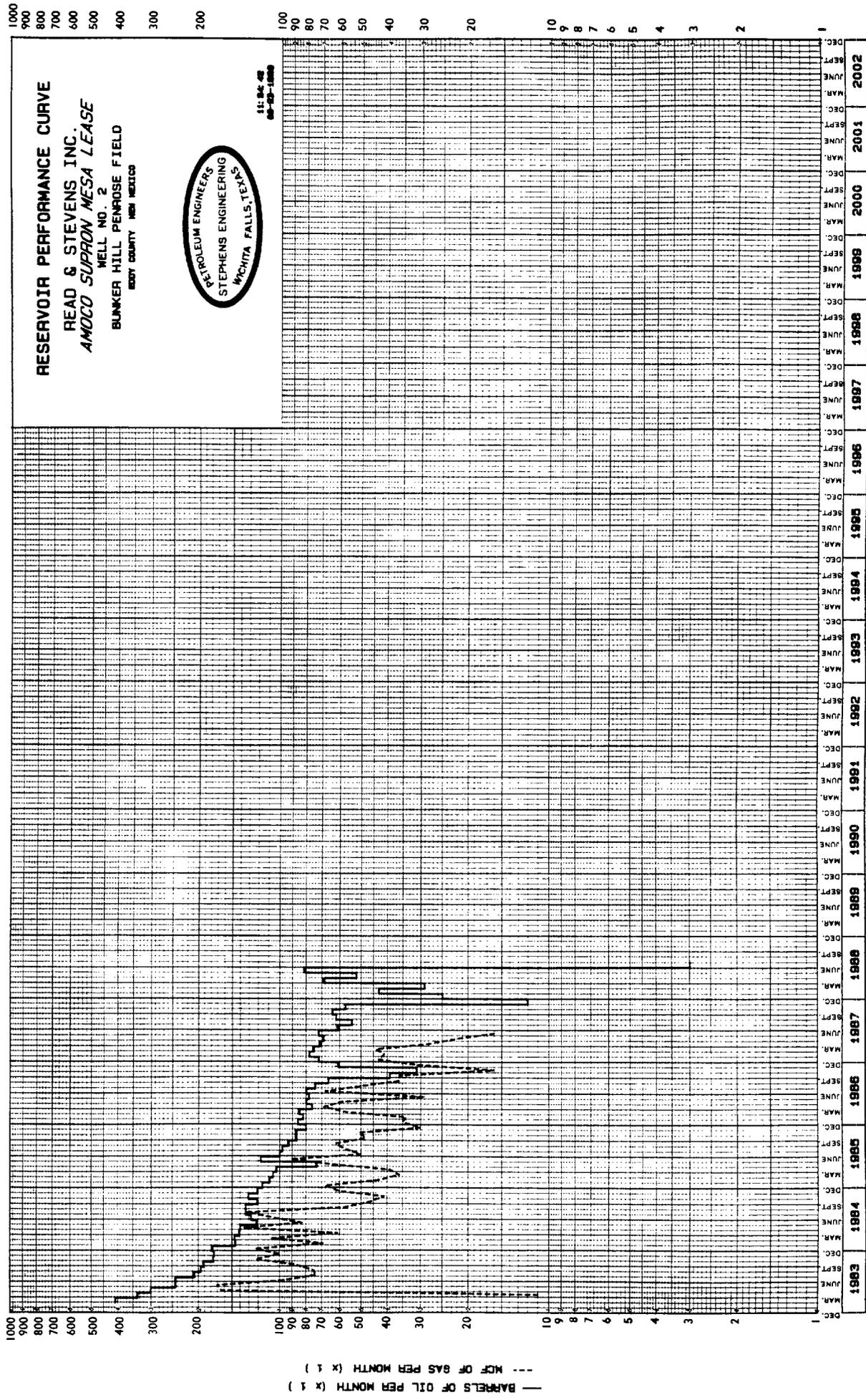
RESERVOIR PERFORMANCE CURVE

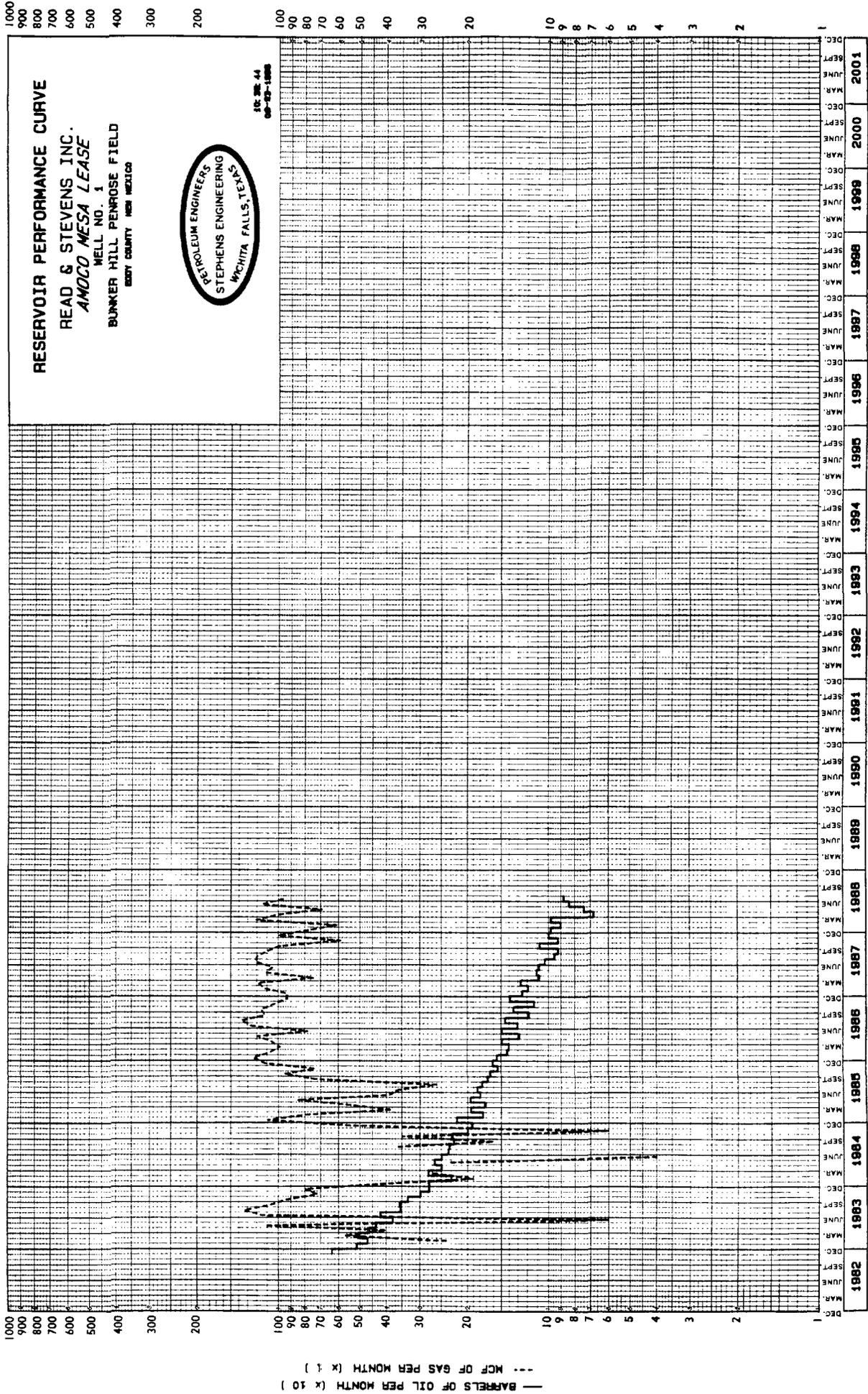
READ & STEVENS INC.
AMOCO SUPPHON MESA LEASE
WELL NO. 1
BUNKER HILL PENROSE FIELD
EBERT COUNTY NEW MEXICO

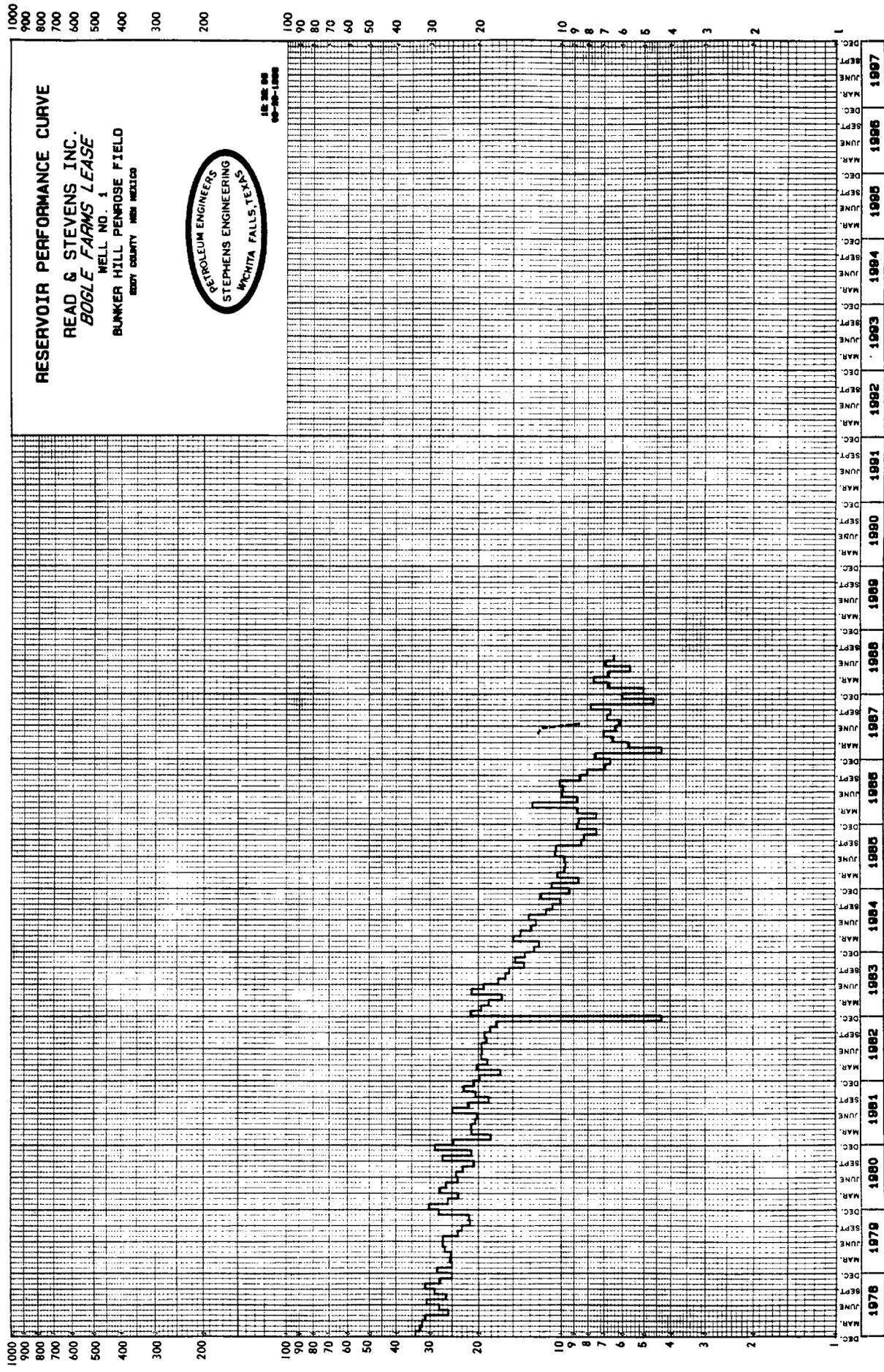


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— BARRELS OF OIL PER MONTH (x 10)
--- MCF OF GAS PER MONTH (x 1)





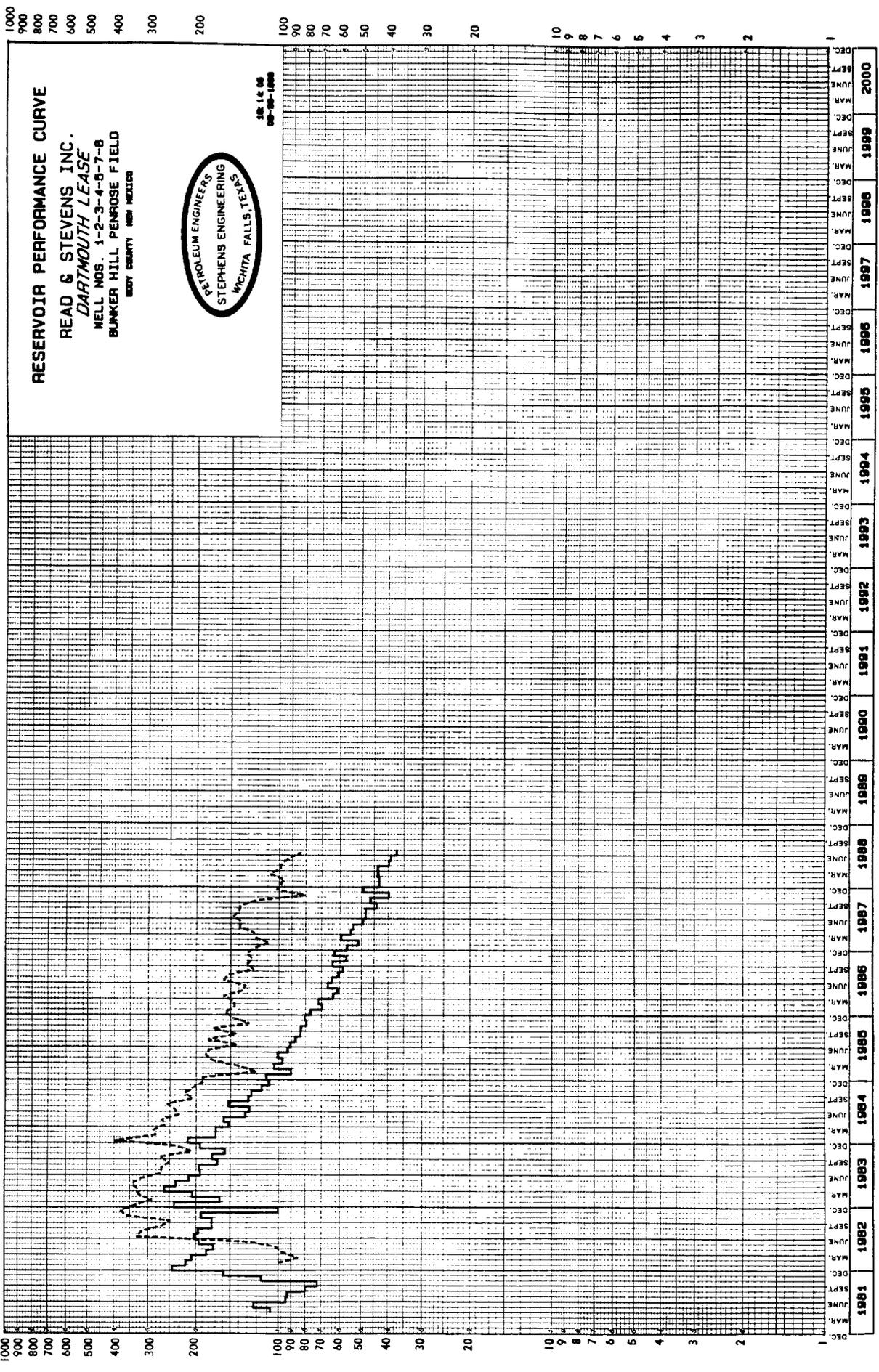


RESERVOIR PERFORMANCE CURVE
READ & STEVENS INC.
BOGLE FARMS LEASE
 WELL NO. 1
 BUNKER HILL PENROSE FIELD
 BOYD COUNTY NEW MEXICO

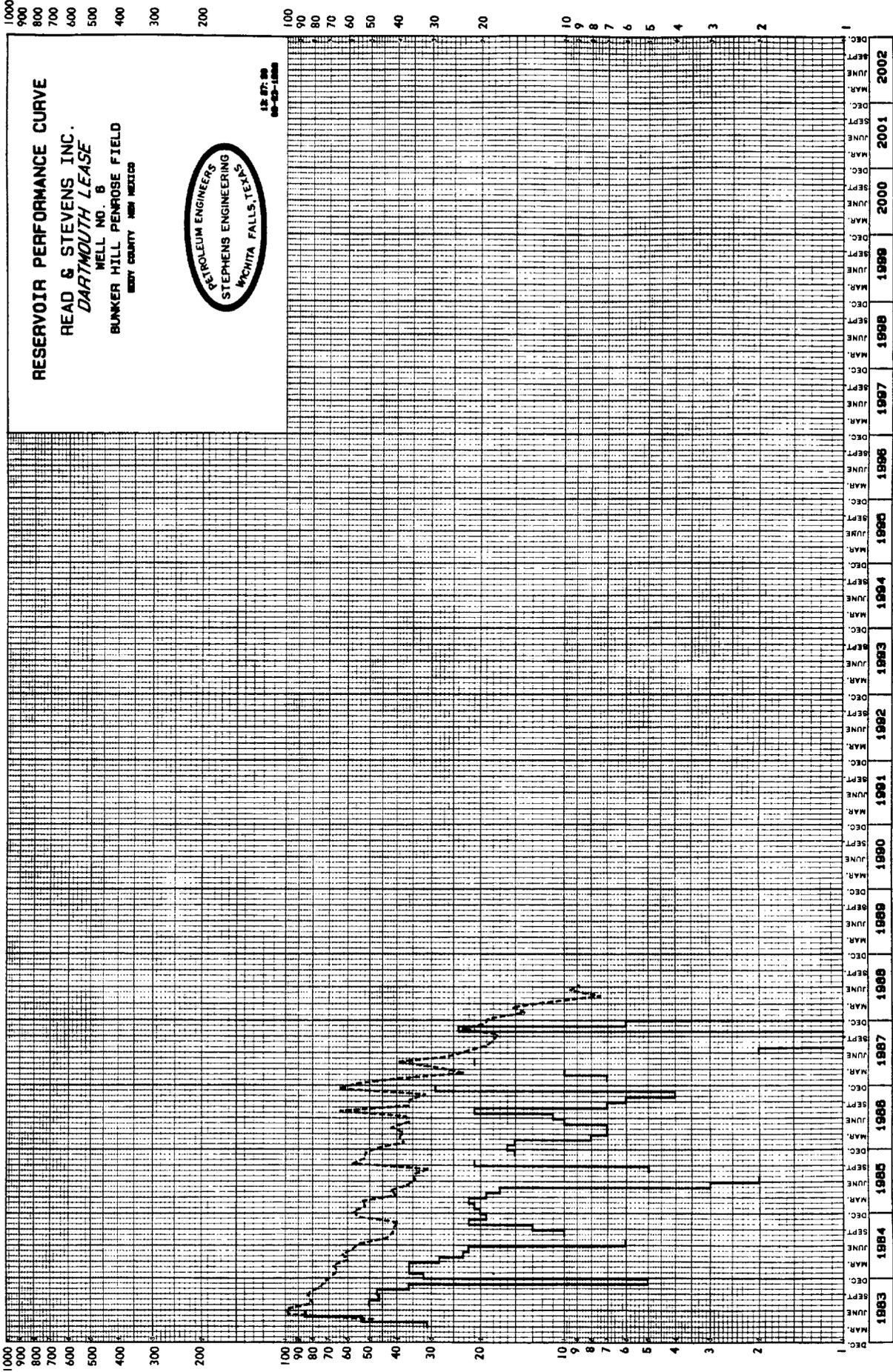


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--- MCF OF GAS PER MONTH (x 10)
 — BARRELS OF OIL PER MONTH (x 10)



--- MCF OF GAS PER MONTH (X 10)
 — BARRELS OF OIL PER MONTH (X 10)

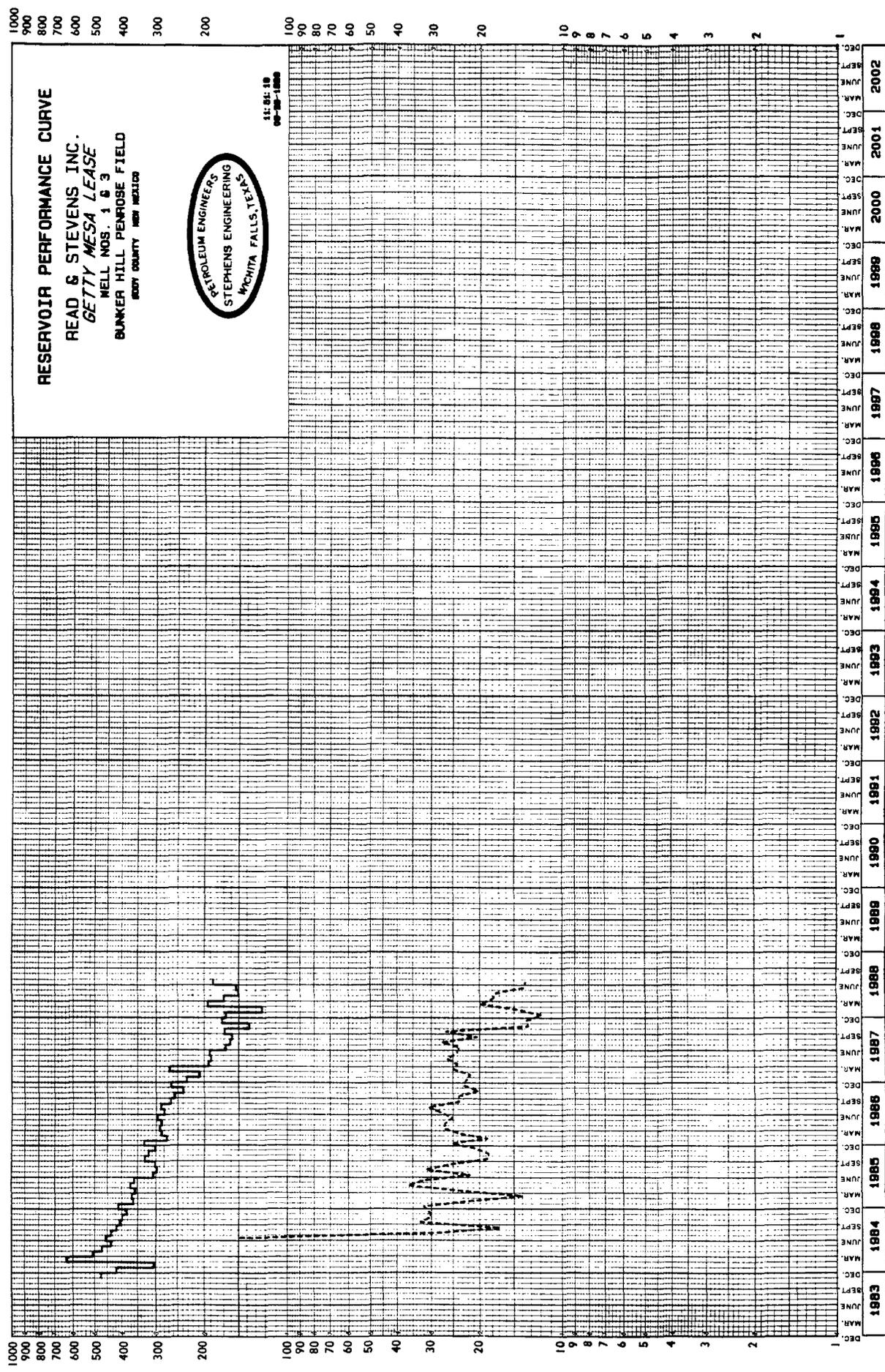


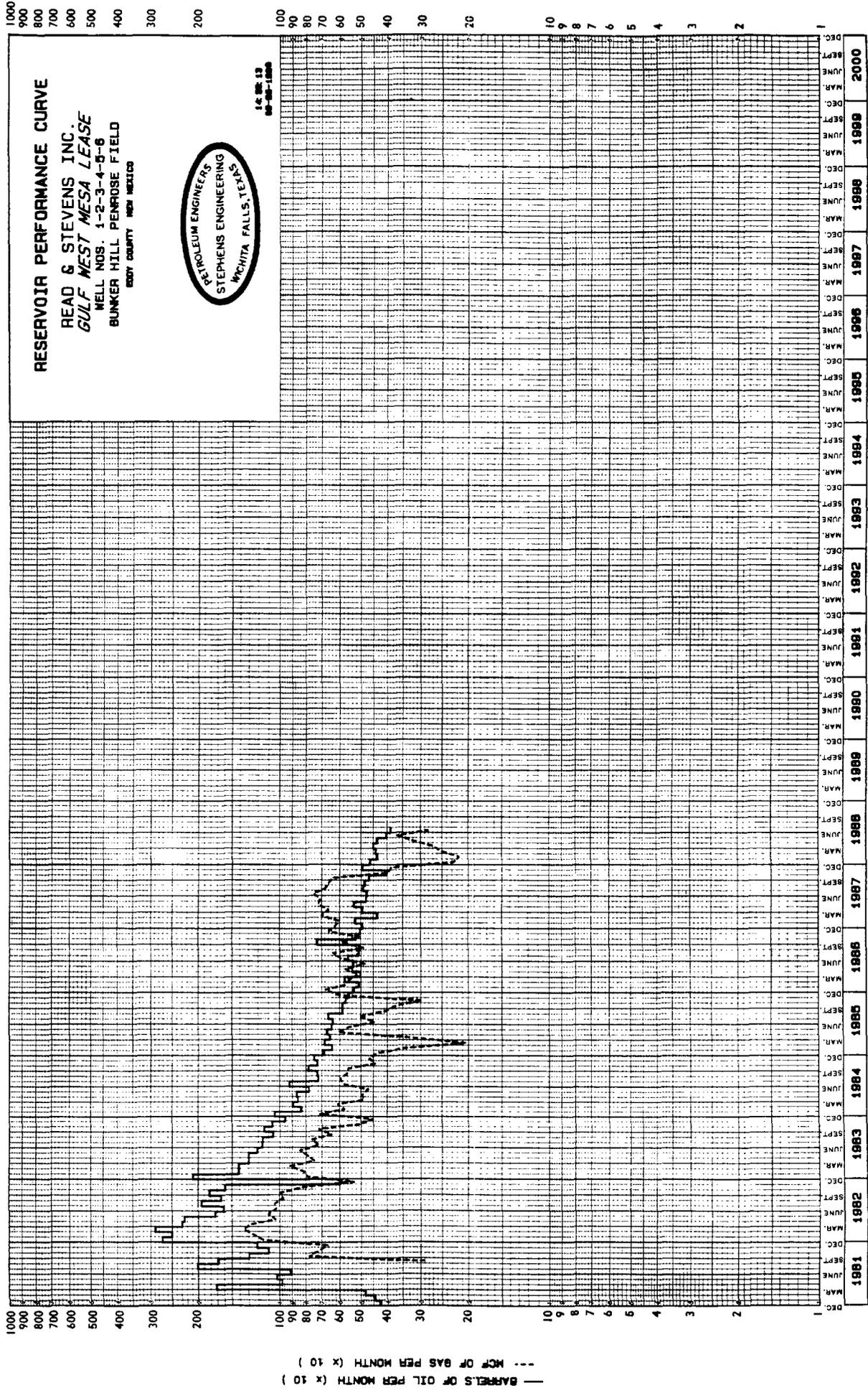
RESERVOIR PERFORMANCE CURVE
READ & STEVENS INC.
DARTMOUTH LEASE
 WELL NO. 6
 BUNKER HILL PENROSE FIELD
 BENTLEY COUNTY NEW MEXICO

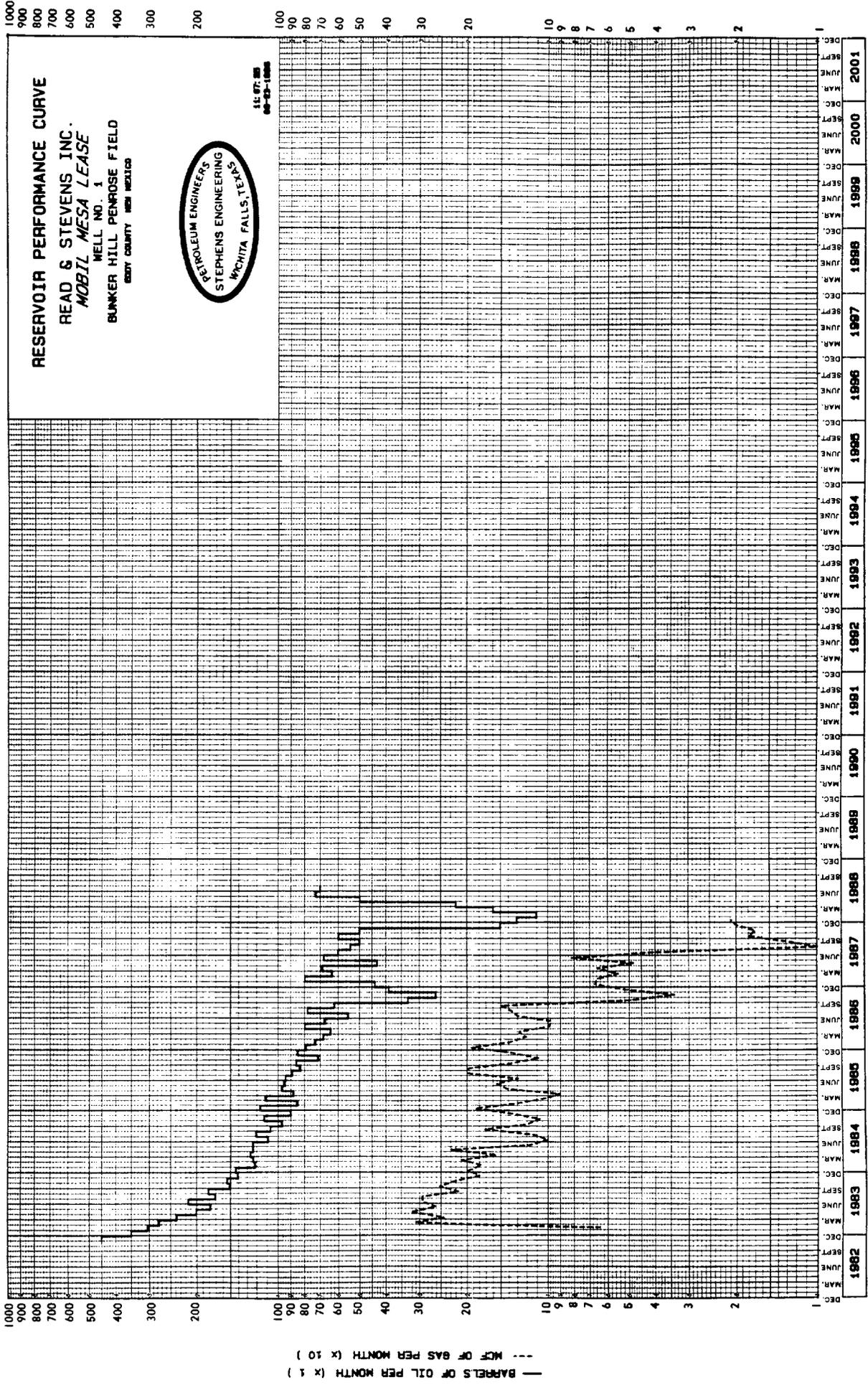


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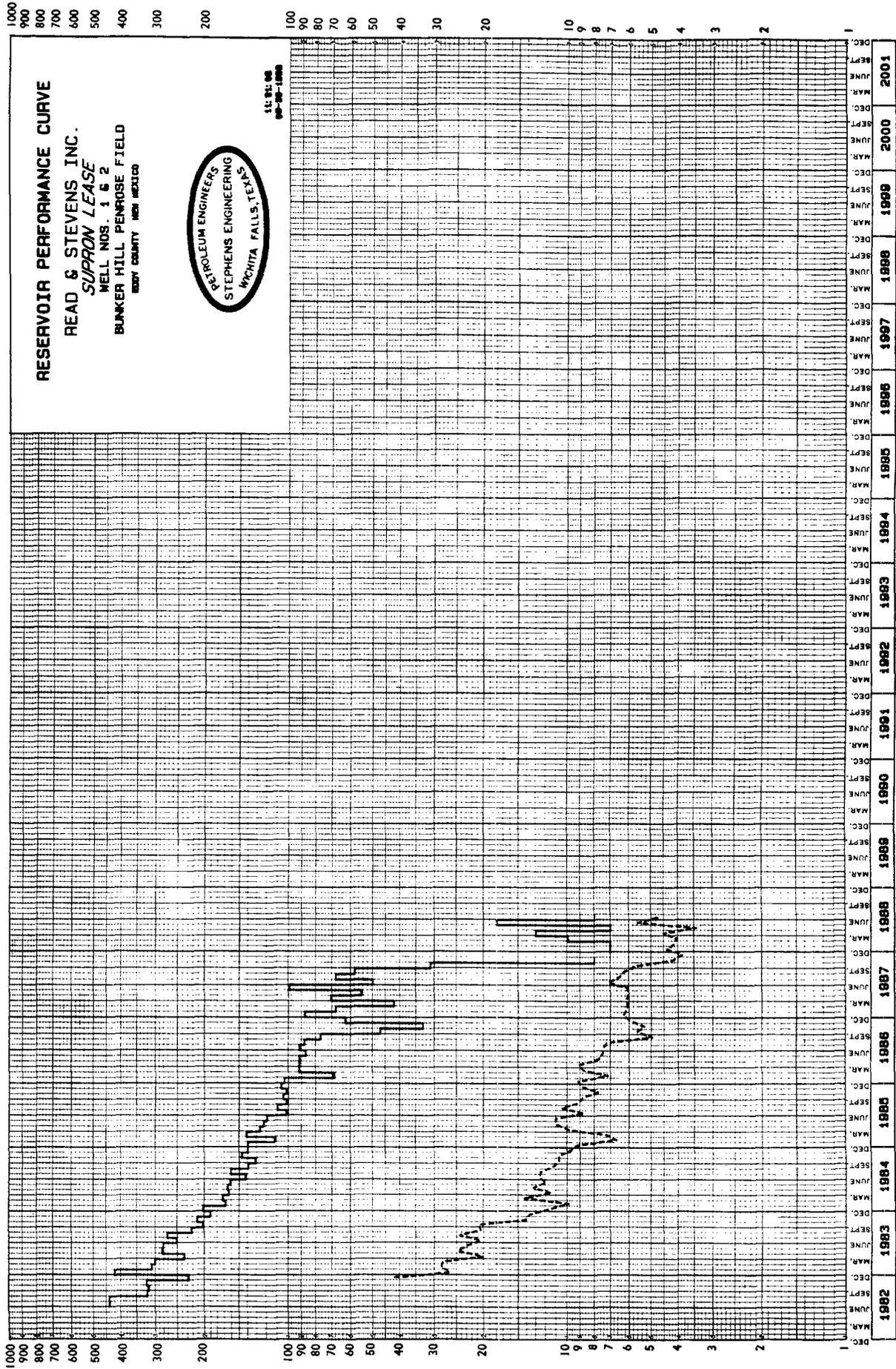
--- MCF OF GAS PER MONTH (x 100)
 — BARRELS OF OIL PER MONTH (x 1)

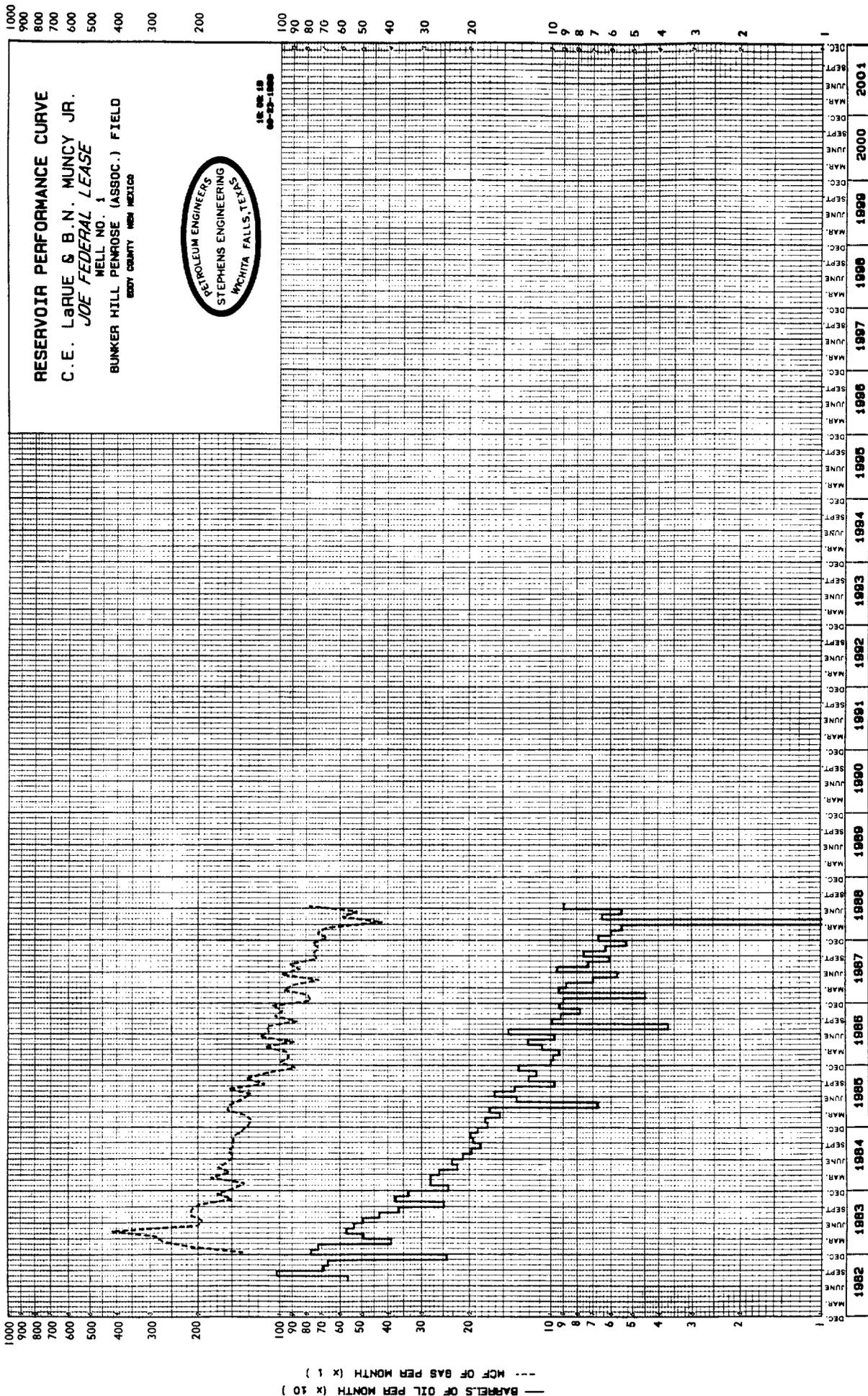


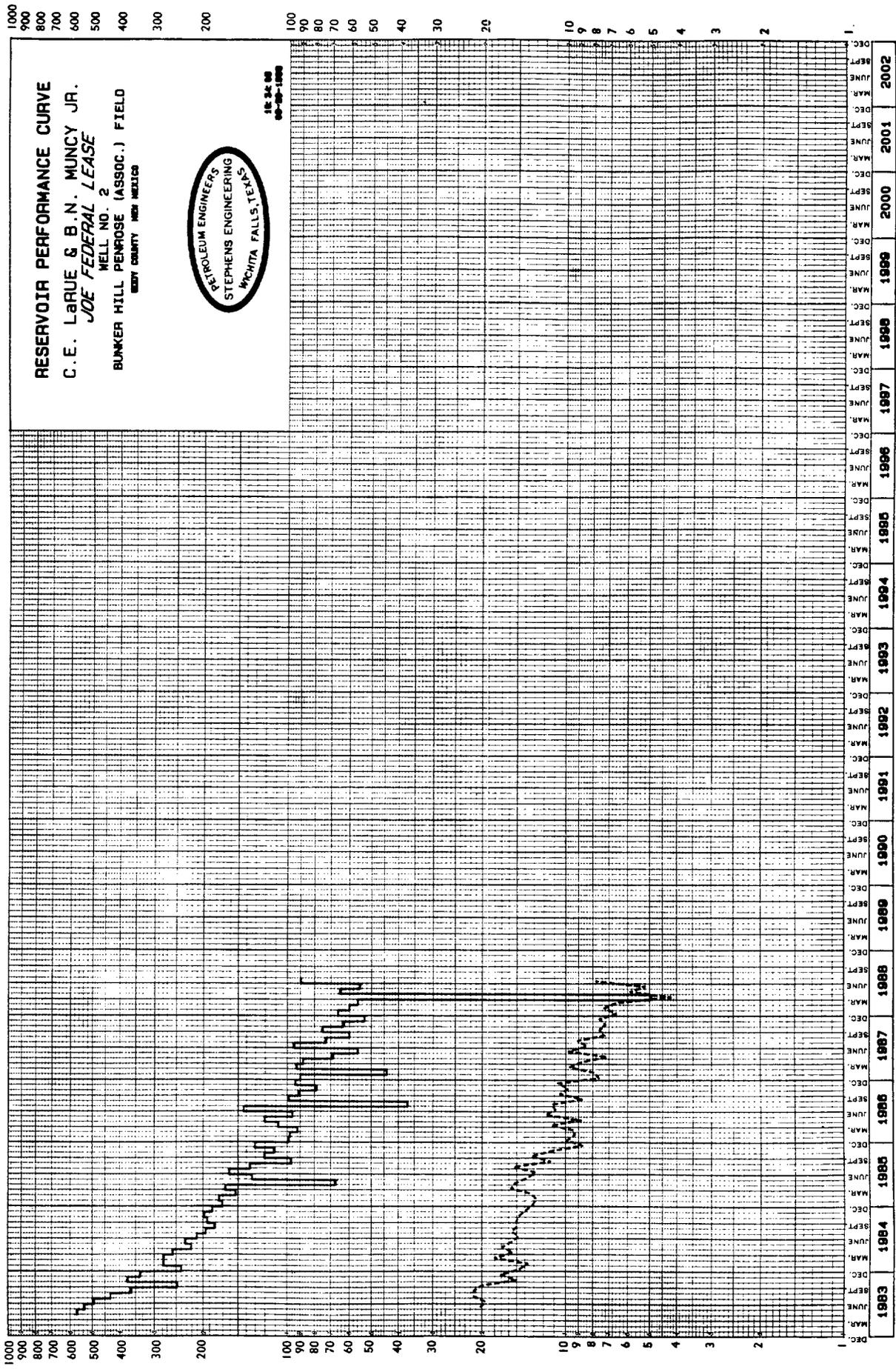




--- MCF OF GAS PER MONTH (x 10)
— BARRELS OF OIL PER MONTH (x 1)





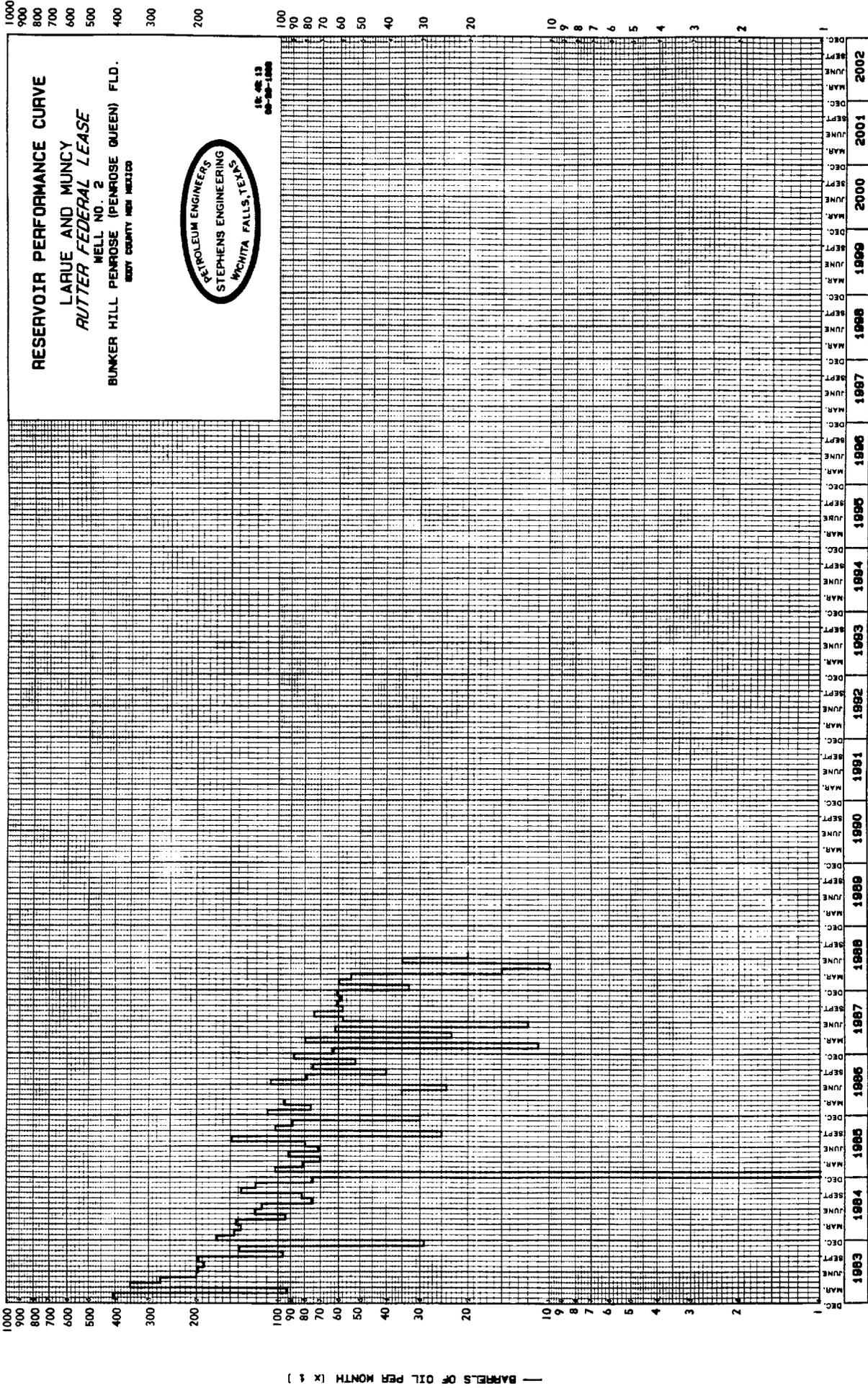


RESERVOIR PERFORMANCE CURVE
C.E. LARUE & B.N. MUNCY JR.
JOE FEDERAL LEASE
 WELL NO. 2
 BUNKER HILL PENROSE (ASSOC.) FIELD
 DEBY COUNTY NEW MEXICO



105 34 08
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--- MCF OF GAS PER MONTH (x 10)
 — BARRELS OF OIL PER MONTH (x 1)



— BARRELS OF OIL PER MONTH [X 1]

PRELIMINARY WATERFLOOD STUDY
READ & STEVENS, INC.
BUNKER HILL FIELD
PENROSE FORMATION
EDDY COUNTY, NEW MEXICO

RECOMMENDED WATER INJECTION PROGRAM

Due to the configuration of the floodable oil column with respect to lease boundaries, the variation of ownership across the Project Area, the presence of one-well leases and the presence of undrilled offsetting tracts, the successful and equitable recovery of secondary oil by waterflooding can only be accomplished as a unitized project. We recommend that a unitization formula consisting of each lease's percentage contribution to the 1) total primary recovery, 2) total surface acreage, 3) current barrels of oil per day equivalent, and 4) total future secondary recovery be considered. This unitization formula would dictate each lease's proportionate share of future secondary recovery as well as each lease's proportionate share of capital expenses to install injection facilities.

The recommended unit outline as shown on the "Isopachous Map - Oil Column" was initially established by including each 40 acre tract that had 50 percent or more of its surface area contained within the five foot thickness contour. Consideration was then given to protecting the unit from non-cooperative fluid withdrawals on offsetting tracts along the western boundary of the oil column. A potential problem could develop in this area should an operator drill and produce a Penrose Sand well in the gas cap. The water injection wells along the western boundary of the oil column will

RECOMMENDED WATER INJECTION PROGRAM (Cont'd)

serve the dual purpose of filling and blocking the gas cap as well as driving oil eastward to producing wells. Withdrawals from the gas cap could preferentially control the direction of water movement in this area and thereby decrease oil recovery. Consequently, the North half of Southwest Quarter of Section 14, the Southwest Quarter of the Southwest Quarter of Section 14 and the West half of the Northeast Quarter of Section 14 were included in the recommended unit outline for protection purposes. The Northwest Quarter of the Northwest Quarter of Section 23 was not included since it is not a likely location for a producing well.

The recommended unitization formula consists of a variety of parameters. A percentage of each tract's surface acres was included in the formula to allow credit for undrilled tracts that are necessary to the unit. Each tract's percentage of floodable reservoir volume is included to allow credit for the secondary barrels of oil beneath each tract, especially in situations where a one well tract will be an injection point. Each tract's percentage of cumulative primary recovery has been included to allow credit for those tracts that experienced good primary recoveries. If a certain tract experienced good primary recovery, chances are that that tract will experience good secondary recovery. Lastly, each tract's percentage of the total current barrels of oil per day equivalent has been included to allow credit for each tract's current cash flow. The recommended tract participation (distribution) factors were calculated as follows:

RECOMMENDED WATER INJECTION PROGRAM (Cont'd)

$$\text{Factor} = 3\% (A/B) + 47\% (C/D) + 25\% (E/F) + 25\% (G/H)$$

Where:

- | | |
|----------------------------|-----------------------------------|
| A = Tract surface acres | E = Tract cumulative primary |
| B = Total surface acres | F = Total cumulative primary |
| C = Tract floodable volume | G = Tract current BOPD equivalent |
| D = Total floodable volume | H = Total current BOPD equivalent |

Please refer to the "Unitization Parameters" tabulation for specific details concerning tract participation factors.

This waterflood program must be approached with an understanding that certain possible reservoir characteristics could be detrimental to the success of the project. Of equal significance are the possibilities that directionally oriented permeability and thin high permeability streaks could exist on an areawide basis. These characteristics could cause bypassing of normally recoverable secondary oil and premature watering-out of producing wells. Another potentially detrimental reservoir characteristic is the presence of anhydrite cement and water sensitive clays in the sandstone matrix. These minerals act to reduce the effective permeability of the reservoir by plugging the pores and pore throats. In addition, the clays can swell when exposed to foreign water causing further blockage of the reservoir. The net effect of these permeability restrictions would be difficulty injecting adequate volumes of water.

These potentially detrimental reservoir characteristics can be controlled to some extent; however, prior knowledge of their severity is essential. For this reason we recommend that a pilot injection program be initiated immediately following finalization of the

RECOMMENDED WATER INJECTION PROGRAM (Cont'd)

Unit Agreement. This pilot program will serve to detect potentially detrimental characteristics and allow for refinement of the full waterflood program. We recommend that the following wells be converted to injection service for the pilot program: Gulf West Mesa No. 2, Gulf West Mesa No. 3, Bogle Farm No. 1, and Dartmouth No.

1. The recommended injection pattern is a regular 5-spot pattern and is based on the probability of a Northwest-Southeast oriented permeability trend. With no knowledge of the actual orientation of the permeability trend, this is an arbitrary assumption; however, the 5-spot pattern will lend itself quite well to any permeability orientation except a due North-South or due East-West trend. To reduce the possibility of premature water breakthrough at key producing wells should a due North-South or due East-West permeability orientation exist, we recommend that the Gulf West Mesa well No. 3 be converted to injection service first and monitored for approximately three to four months before converting the remaining pilot injection wells. If a due North-South or due East-West permeability orientation exists in the Project Area, the most feasible injection pattern would be a staggered line-drive; therefore, adjustments would need to be made to the pilot program as well as the full waterflood pattern. We recommend an average injection rate of 140 barrels of water per day per well which translates to an average total injection rate of 560 barrels of water per day for the pilot program with four injection wells and 1,820 barrels of water per day for the full waterflood program with 13 injection wells.

RECOMMENDED WATER INJECTION PROGRAM (Cont'd)

We have estimated the cost to implement a pilot injection program consisting of four injection wells to be approximately \$96,622. This would leave approximately \$137,286 of the total capital investment for expansion of the pilot program to a full waterflood program. Please refer to the Cost Estimate section of this report for a listing of the major equipment items for the pilot program and the full waterflood installation.

The water plant should be constructed in the vicinity of the Dartmouth well No. 1. This location is central in the Project Area and should result in the minimum footage of water injection line. The plant should be fully enclosed with adequate ventilation and a concrete foundation. The plant should include two water injection pumps rated at approximately 1300-1500 barrels of water per day each at 2000 psi, three fiberglass water storage tanks equipped with high-low level switches, high pressure suction and discharge headers, an electrically operated bypass line and gauges to monitor tank levels, discharge pressure, oil pressure in the pumps, etc.

To further reduce the footage of injection line, we recommend the use of two field satellite headers. These headers would be fed by a single trunk line each and would feed a total of ten water injection wells, leaving three water injection wells to be fed by the main plant. The proposed location of these satellite headers is shown on the enclosed "Injection Facilities Map". Each injection well should be equipped with a water measurement meter and pressure tap to allow daily monitoring and recording of injected volumes and

RECOMMENDED WATER INJECTION PROGRAM (Cont'd)

pressures. These "meter runs" should be made a part of the satellite headers for those wells fed by the headers or inside the plant building for those wells fed directly by the plant. The proposed facilities layout as shown on the "Injection Facilities Map" would require approximately 24,750 feet of 2 3/8" injection line. All injection and trunk lines should be internally plastic coated or "Salta lined" to reduce corrosion wear. For the same reason, all connections and piping in the water plant should be internally plastic coated. The proposed facilities layout will further require approximately 22,000 feet of 2" poly pipe for transfer of produced water to the plant.

We have recommended a total daily water injection rate of 1,820 barrels; however, the produced water currently available from the Project Area is negligible. An adequate water supply for secondary recovery projects has historically been a major concern in the Southeast New Mexico Area. We have been informed, however, that the City of Carlsbad fresh water supply line runs through the Bunker Hill field approximately 2 1/2 miles from the proposed plant site. This supply line currently serves several operators in the area with an adequate water supply and should therefore be the most accessible water source in the area.

Should the fresh water supply, as previously discussed, be utilized in the Project Area, it would require chemical treatment prior to injection. A chemical program should be designed to treat the following conditions:

RECOMMENDED WATER INJECTION PROGRAM (Cont'd)

- 1) Presence of aerobic bacteria: We have found that the fresh water from the City of Carlsbad supply line contains substantial colonies of aerobic bacteria. Aerobic bacteria, which needs oxygen to survive, can be somewhat controlled by a closed injection system but more effectively by an oxygen scavenger/chlorine chemical compound. A combination of these techniques is recommended. If left unchecked, aerobic bacteria can completely plug the reservoir surrounding injection wells.
- 2) Compatibility with water sensitive clays: As previously discussed, the Penrose Sand in the Project Area contains corrensite and discrete chlorite which are highly acid and water sensitive clays. The fresh water supply must be adequately treated to prevent the exchange of ions from the fresh water to the unstable clays which causes swelling and subsequent permeability restrictions.

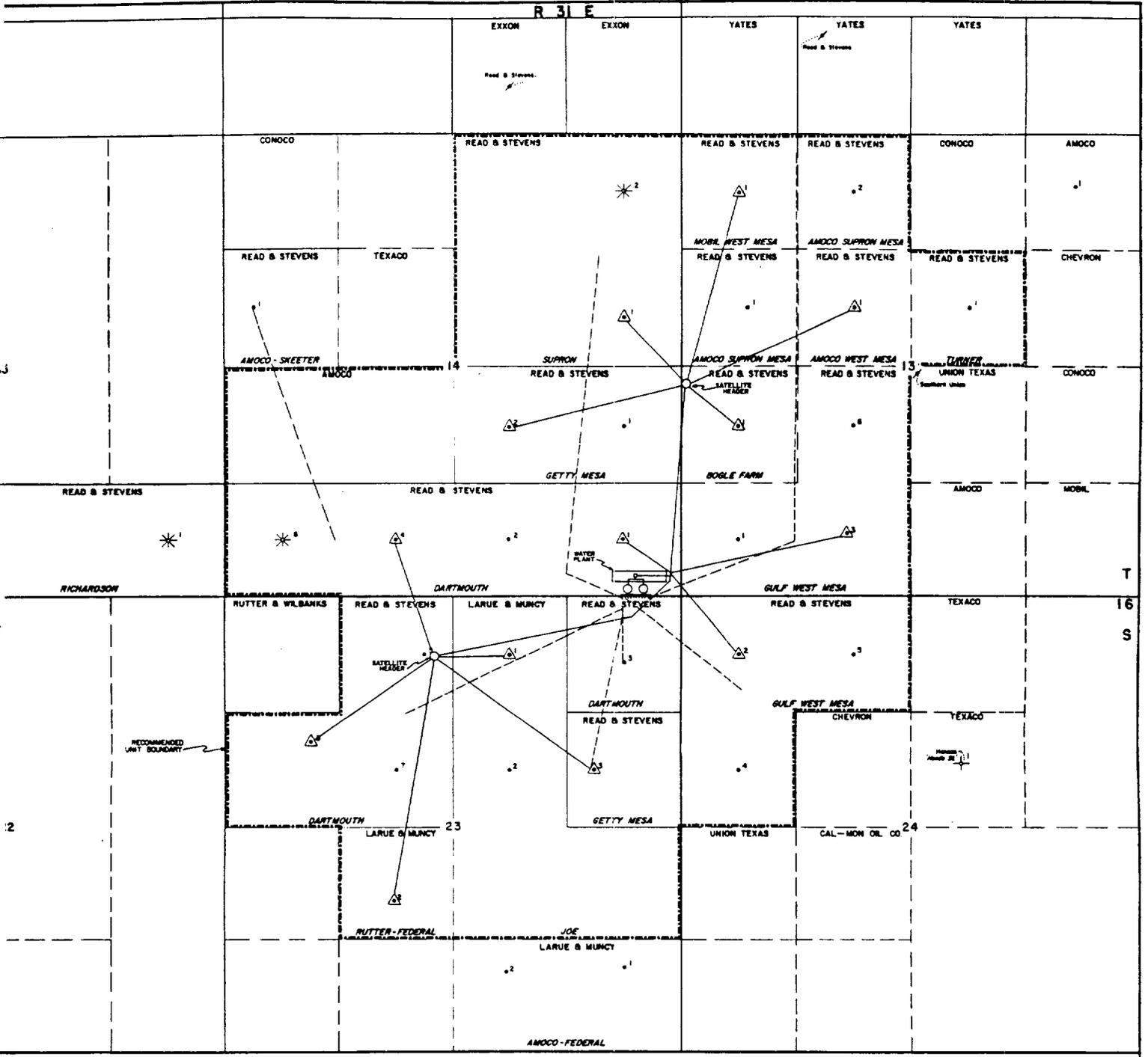
A laboratory water analysis should be performed on both the proposed water supply and the produced water from the Project Area to check for potential scaling tendencies as well as other possible reactions. A rigorous chemical program will be of utmost importance to the overall success of the waterflood project. The total water requirement should be approximately 5,150,000 barrels of water, or 1.57 pore volumes within the estimated floodable limits. This requirement corresponds to a "water injected to secondary oil produced" ratio of 15 to 1. At the proposed injection rate of

RECOMMENDED WATER INJECTION PROGRAM (Cont'd)

1,820 barrels of water per day, the total throughput should be accomplished in approximately seven years and nine months from the date of full waterflood expansion for a total waterflood life of eight years and nine months.

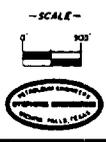
We are of the opinion that unitization of the Project Area should be completed within the next six months and that the pilot injection program should require no longer than one year to accomplish. The full waterflood, therefore, could begin after eighteen months or during year 2. Barring any unexpected difficulties, the expansion of the pilot program to a full waterflood could be accomplished toward the end of the pilot program in year 2.

It will be necessary to the success of this project that the operation be closely monitored in order to effectively sweep the reservoir and maximize secondary oil recovery. Close supervision will be necessary in order to track the flood fronts as they progress through the reservoir. Complete records of daily water injection rates and injection pressures must be maintained, and individual producing well tests should be taken and analyzed at least on a monthly basis. Close communication between field personnel and the engineer in charge must occur so that the routine problems associated with all secondary recovery projects can be anticipated and remedied.



- LEGEND—**
- PRODUCING OIL WELL
 - * PRODUCING GAS WELL
 - △ WATER INJECTION WELL (PROPOSED)
 - + PLUGGED & ABANDONED WELL
 - DRY HOLE
 - LOCATION
 - PROPOSED WATER LINE
 - WATER DISTRIBUTION LINE

PRELIMINARY WATERFLOOD SURVEY
READ & STEVENS, INC.
 BUNKER HILL FIELD
 PENROSE FORMATION
 EDDY COUNTY, NEW MEXICO
INJECTION FACILITIES MAP



PRELIMINARY WATERFLOOD STUDY
 READ & STEVENS, INC.
 BUNKER HILL FIELD
 PENROSE FORMATION
 EDDY COUNTY, NEW MEXICO

COST ESTIMATE

The estimated capital outlay required to implement the proposed water injection program is based on recent waterflood installation bids from suppliers and contractors and is as follows:

Year 1 - Pilot Program

A)	Water Supply		
	1) Approximately 2 1/2 mi. 4" poly pipe, valves and fittings		\$ 26,400
B)	Water Plant		
	1) Injection pump rated @ 1300-1500 BWPD @ 2000 psi w/ control panel, level switch, pulsation dampener and fittings	\$ 12,446	
	2) Gathering tanks, inlet headers, overflow and drain, outlet header (tanks on hand)	\$ 7,065	
	3) Suction and discharge headers, Bypass run, pump suction and discharge	<u>\$ 9,288</u>	
	Subtotal		\$ 28,799
C)	Water Distribution System		
	1) Meter runs, (4)	\$ 4,680	
	2) Injection line, 6050' - 2 3/8" Salta	<u>\$ 16,335</u>	
	Subtotal		\$ 21,015
D)	Injection Wells		
	1) Injection wellheads, (4)	\$ 3,016	
	2) Injection packers, (4)	<u>\$ 1,288</u>	
	Subtotal		\$ 4,304
	Total Equipment - Pilot		\$ 80,518
E)	Labor, Engineering, Supervision @ 20% of Equipment Bid		<u>\$ 16,104</u>
	Total for Pilot		\$ 96,622

COST ESTIMATE (Cont'd)Year 2 - Expansion to Full Flood

A)	Produced water, Approximately 22,000' 2" poly pipe, fittings and connections	\$ 10,330
B)	Water Plant	
1)	Injection pump rated @ 1300-1500 BWPD @ 2000 psi	\$ 10,829
2)	Pump Suction and discharge, additional piping	\$ 5,222
3)	Plant Building, steel with concrete floor, separate room for controls and gauges	<u>\$ 14,000</u>
	Subtotal	\$ 30,051
C)	Water Distribution System	
1)	Meter runs (9)	\$ 10,530
2)	Water injection line, 18,700' - 2 3/8" Salta, fittings and connections	\$ 53,157
3)	Satellite Headers (2)	<u>\$ 670</u>
	Subtotal	\$ 64,357
D)	Injection wells	
1)	Injection wellheads, (9)	\$ 6,777
2)	Injection packers, (9)	<u>\$ 2,894</u>
	Subtotal	<u>\$ 9,671</u>
	Total Equipment-Expansion	\$114,409
E)	Labor, Engineering, Supervision @ 20% of Equipment Bid	<u>\$ 22,882</u>
	Total for Expansion	\$137,286
	Grand Total Investment Years 1 and 2	\$233,908

It has been assumed that during Year 2 when the majority of well conversion takes place, that major excess production equipment, (i.e. excess pumping units, sucker rods, etc.) from producing wells converted to injection service, will be sold or transferred with a credit issued to the Unit. We have estimated the value of

COST ESTIMATE (Cont'd)

this excess equipment at \$75,539, bringing the net investment in Year 2 to \$61,747.

PRELIMINARY WATERFLOOD STUDY
READ & STEVENS, INC.
BUNKER HILL FIELD
PENROSE FORMATION
EDDY COUNTY, NEW MEXICO

GENERAL SUMMARY

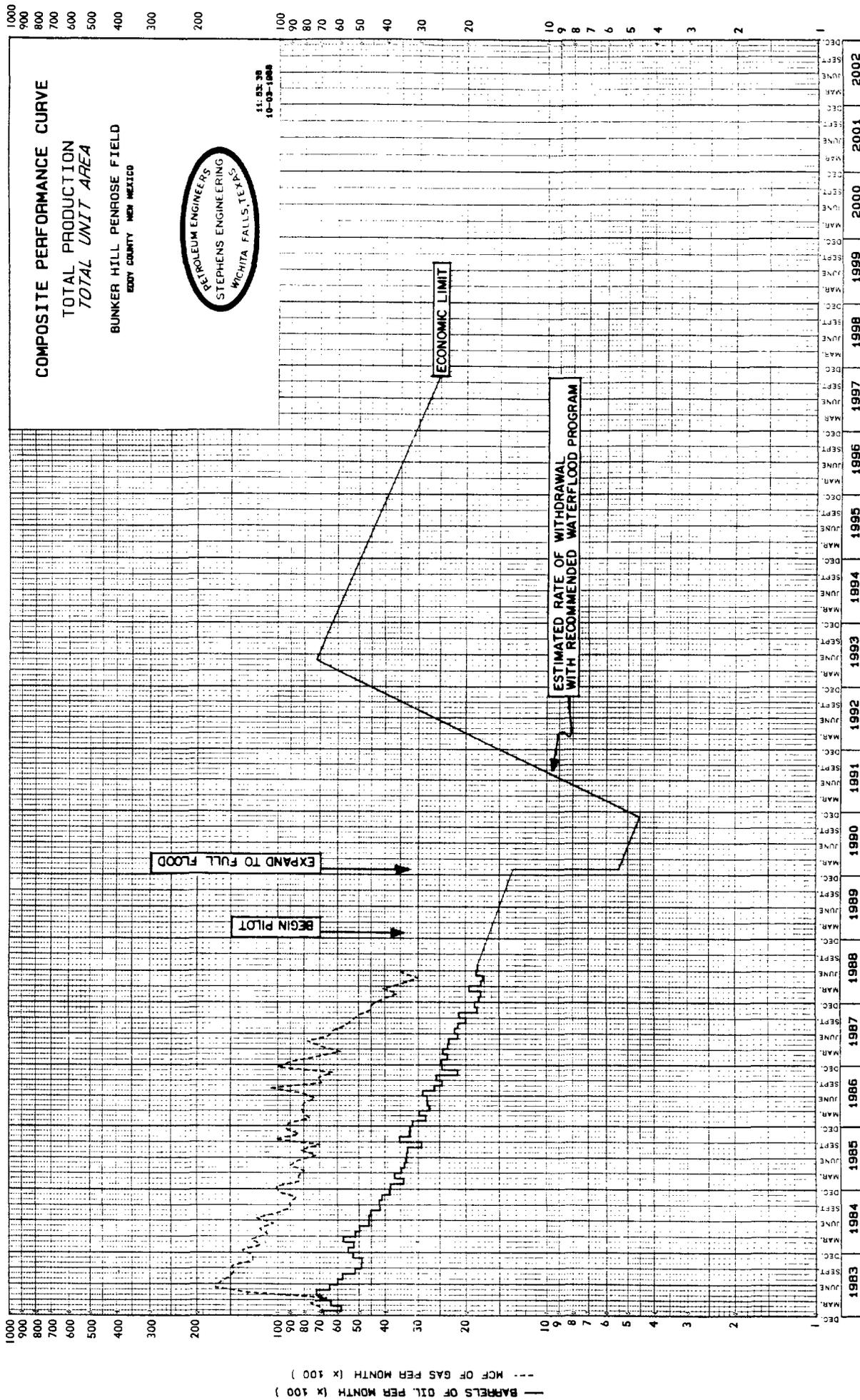
As discussed in this analysis, the Penrose Sand reservoir in the Project Area appears to be a favorable candidate for secondary recovery by waterflooding. We recommend that unitization negotiations begin immediately to prevent delay in implementing a pilot program. The pilot program should provide invaluable information and thereby minimize future risk during the full waterflood. The waterflood pattern should be a regular 5-spot unless the permeability orientation proves to be due North-South or due East-West, in which case a staggered line drive pattern would be recommended. It is our recommendation that the working interest ownership approve this project and that this project be undertaken as soon as practicable.

PRELIMINARY WATERFLOOD STUDY
 BUNKER HILL FIELD
 PENROSE SAND FORMATION
 AS OF AUGUST 1, 1988

UNITIZATION PARAMETERS

Operator Lease	Surface Acres	%	Floodable Reservoir Volume	%	Cumulative Oil Production	%	Current BOPD Equivalent	%	Tract Participation Factor
Read & Stevens, Inc.									
Amoco Supron Mesa 1	40	2.941	166.09	5.269	14,020	4.207	3.4	4.782	4.812
Amoco Supron Mesa 2	40	2.941	27.59	.875	7,180	2.154	1.8	2.532	1.671
Amoco West Mesa 1	40	2.941	84.12	2.669	13,961	4.189	3.1	4.360	3.480
Bogle Farm	40	2.941	205.74	6.527	24,030	7.210	2.1	2.954	5.697
Dartmouth 1-5, 7, 8	280	20.588	849.52	26.950	100,826	30.253	15.0	21.097	26.121
Dartmouth 6	120	8.824	9.28	.294	959	.288	3.1	4.360	1.565
Getty Mesa 1, 2, 3	120	8.824	409.51	12.991	22,607	6.783	10.4	14.627	11.723
Gulf West Mesa	240	17.647	696.33	22.090	85,512	25.658	14.9	20.956	22.565
Mobil Mesa 1	40	2.941	62.88	1.995	7,176	2.153	1.7	2.391	2.162
Supron	160	11.765	292.93	9.293	10,209	3.063	3.2	4.501	6.612
Turner 1	40	2.941	12.37	.392	14,998	4.500	6.5	9.142	3.683
	1,160	85.294	2,816.36	89.345	301,478	90.458	65.2	91.702	90.091
Larue & Muncy									
Joe	160	11.765	296.40	9.403	25,693	7.710	4.2	5.907	8.177
Rutter-Federal	40	2.941	39.47	1.252	6,107	1.832	1.7	2.391	1.732
	200	14.706	335.87	10.655	31,800	9.542	5.9	100.000	9.909
	1,360	100.000	3,152.23	100.000	333,278	100.000	71.1	100.000	100.000

Tract Participation Factor = 3% Surface Acres + 25% Cumulative Oil + 25% Current BOPD Equivalent + 47% Floodable Reservoir Volume



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DEC 5 9 00 AM '88

STATE LAND OFFICE
SANTA FE, N.M.

